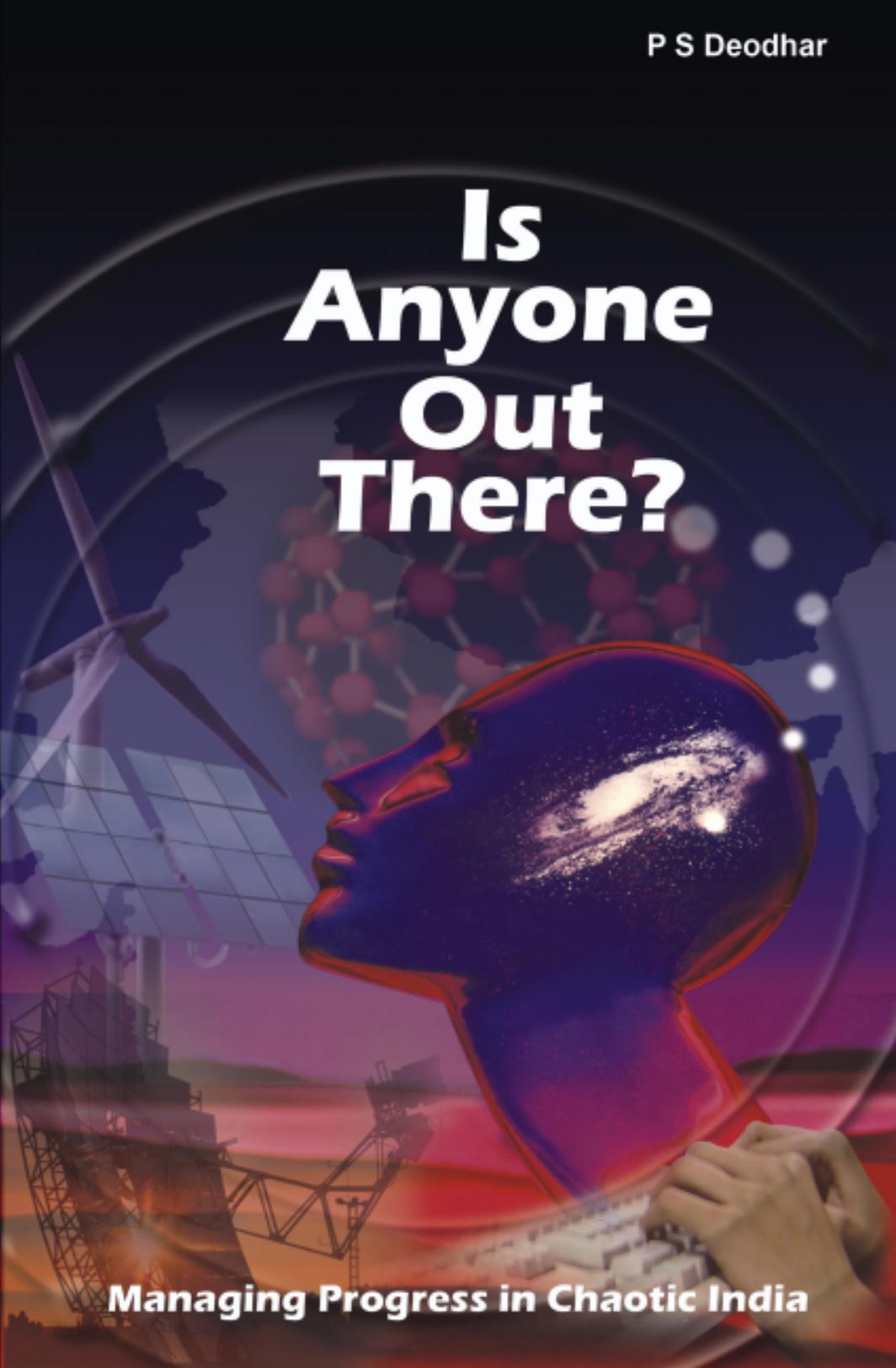


P S Deodhar

Is Anyone Out There?



Managing Progress in Chaotic India

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Managing National Progress in Chaotic India

P S Deodhar

Published by Friends of the Author

A/5 Wagle Estate, Thane 400 604

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GRATEFUL ACKNOWLEDGEMENTS

My association with Rajiv Gandhi was accidental and has a lot to do with the existence of this book. Had I not met him, I would have ended up like scores of other professional entrepreneurs in India who keep on regretfully wondering why our country has not progressed to realise its true potential as a nation of talented people.

My closeness to Rajiv was primarily due to Manubhai Desai, the founder-owner of Cosmic Radio in Mumbai. Cosmic was then a reputed designer manufacturer of a technologically advanced and world-class High Fidelity Audio Equipment. In spite of being a SSI Unit with limited fiscal resources, Manubhai's technical entrepreneurship helped this family enterprise to have clients amongst connoisseurs of music and the country's bigwigs including Rajiv. Manubhai not only brought me close to Rajiv but also participated and whole-heartedly supported my briefings to Rajiv to understand what was wrong with our Electronics Policies and how it has throttled our progress and was ruining our opportunities. Manu has the art of winning and keeping friends everywhere. A Pune Kobra like me has none of it. So during those years Manu 'sold' me everywhere. The five years of our weekly meetings gave Rajiv the worm's eye view of the ground realities; supplementing the bird's eye view of the country he got from his Avro cockpit. Rajiv strictly avoided all politicians and bureaucrats in Mumbai but he enjoyed brushing shoulders with common people each day. That was a good background to enter Indian politics that fate brought to him in 1981. 1981 to 87 were the honeymoon days for this vendor of charms. However, we all got progressively frustrated after mid 87. By then, Rajiv was left with little time for bold and progressive policy initiatives as he got sucked into a political whirlpool full of intrigue and manipulations. I must gratefully acknowledge the role of both, Manu and Rajiv, in getting me involved in public policy matters and help me realise, at least partly, my dream to use electronics and Computer technology as a nation-building tool.

Another person that needs to be acknowledged is unfortunately no more. Ram Narayan Patro was a seasoned bureaucrat and became a trusted friend after he found me clean and earnest in my objectives. He helped me survive in Delhi by alerting me of sharks and snakes amongst Delhi's bureaucrats and also the technocrats.

Thanks are also due to young Sunil Kumar, who ungrudgingly went through the manuscripts and made several useful suggestions.

There are many other friends and well-wishers over the years that I want to thank for their help in my efforts to implement many concepts and solutions that helped us achieve the much talked about rapid growth of IT and Electronics Industry in the country. The ICT phenomenon, now synonymous with India's global brand equity, is an outcome of our pioneering efforts. We were also lucky that in spite of all the handicaps of working in a chaotic and power obsessed capital, we could grow this industry from 1200 crores in 1982-83 to 9400 crores in 1989-90. I, however, still wonder whether we should celebrate what we did or feel sad about not being able to carry out many others initiatives that frittered away with the sands of time.

P S Deodhar

MUMBAI, June 25, 2007

PREFACE

Globalization of trade and knowledge driven by the rapid advances in communications and computer technologies has equally speedily expanded the contemporary social, cultural and political landscape for every nation. In India, we are witnessing a deep impact of these global events and have been grappling for enduring solutions while remaining within democratic structure and deeply ingrained bureaucratic apathy. The hold of bureaucracy over administration continues to haunt us. Add to that political instability caused by coalition politics that has delayed progress in real terms. In economic terms educated white collared people in the country are doing very well and there is almost unreal boom in stock markets but as a ground reality the disparity amongst our people continues to be huge and has kept growing.

Fundamentally many amongst us wonder as to why we are where we are, in spite of being endowed with a bounty of nature and so many bright minds. No one can deny that sections of our society have progressed materially. There are a lesser number of poor families and on the other hand the prosperous are growing even more prosperous. In spite of this all of us know that essentially most of our potential as a country remains unrealised. Economic data may highlight our material gains but unfortunately there is a qualitative degradation. These days progress cards of countries are about their economic progress in statistical terms like GDP, per capita income and so on. We ignore some fundamental social benchmarks to learn about the state of a nation. These are more qualitative. The daily life of the poor majority today is harder, reflecting general decline everywhere. Everyone knows that ground realities are different than economic growth figures stated. For instance almost everything around us that is publicly owned or state owned looks mediocre, callously maintained and lacking in quality. Public money is squandered on public utilities but the result has no quality. People at large are getting self-centred. Money is controlling our wealthy rather than the other way round. The reasons for our current state are many and wide ranging but

they are all well known and much debated. Unfortunately that doesn't help to cure anything. Enunciating problems and reiterating them just adds to frustration. Problems are never a problem; the solution is.

'Is Anyone Out There' is a collection of observations, concepts and some solutions that could be our answers or thoughts that would lead us towards them. This is also an attempt to highlight some concepts and solutions which have been successfully used over the last decade. Then there are some useful solutions that waiting to be tried.

Is there a way out? Books like this one, or others, while applying their mind to national problems, would at least provide options to those in power. As the saying goes; 'where there is a will, there is a way'. But those in power would realise soon that their options are limited. The Media reach is growing deeper into the hinterlands and it would soon disable those whose capital is our ignorant masses. Five hundred million amongst us are less than twenty-five in age and are getting better and better informed in this knowledge age. Being informed can lead to the problem of making a choice. They want solutions to turn things in their favour.

Sometimes well evolved concepts are realised speedily, especially if one gets the right ear of those with a power to change. I still remember that fateful late afternoon when I got a lucky break that was to change my life a great deal. It was in the form of an encounter in the December of 1982 with Smt. Indira Gandhi in Rajiv's living room in PM House. Rajiv told her of my ideas about changing sharply the Government's Electronics Policy. This finally led to the 1983 New Electronics Policy that was radically different, helping us to push the electronics production of the country that consistently grew to 9400 crores in 1989-90 from mere 1200 crores in 1983. The IT roadmap that was laid then is paying our country rich dividends today. When people in power are listening, progress is possible. Those of us who are lucky to get the right ear of those with power solutions work. If not, one ends up being a crusader

leading a movement or starting an NGO and creating islands of success to demonstrate a solution and the hope of it getting replicated. In this collection I present a few such Ideas, concepts and solutions that would work. Some of those mentioned here have worked very well and hopefully some others would work if someone who can change would care.

Effective public governance helps to strengthen democracy and human rights but even more fundamental is a need for strengthening it by achieving widespread literacy and thus ensuring a well informed society. Efforts in that direction would promote India's economic prosperity and social cohesion, reduce poverty, enhance environmental protection and result in sustainable use of natural resources. If our politicians and senior bureaucrats seek such a path it would deepen people's confidence in our government and public administration. In my opinion, there are five basic aspects which have to be accomplished to realise this.

1. In spite of media created slogans like 'Mera Bharat Mahan' or 'India Shining', national spirit as a concept is weakening today and that needs a quick solution. There is a growing divide amongst our people in terms of religion, language, caste and 'being Indian' has become secondary. India is prospering Bharat is getting ignored. Insecurity is leading multi-lingual, multicultural segments of our society to make these segments increasingly isolated and self-centred. Regional politics is gaining over national politics.
2. We need to speedily create an 'informed' society. Advances in communication technology and information management need to be harnessed for rapid dissemination of knowledge. Prosperous and totally tax and duty-free IT Industry should take over the cost and responsibility for universal rural primary education.
3. National political parties need to evolve national leaders with vision and a commitment to nation building. Such leadership is unlikely to evolve out of our street-smart regional leaders

who unfortunately have a narrow vision limited to their caste or region. One can see no under-75 national leader today, except, may be, Ms. Sonia Gandhi.

4. We need to restructure the Indian Administrative and Police Services. These cadres were basically trained to help the British to rule over a captive nation and the same mould is being used even today. We need public administrators to competently overview community welfare and security while supporting nation-building activities. We need administrators to serve citizens of a free nation. We also need to scrap laws created by the British to tame the natives. Another aspect of these laws is that being antiquated they do not serve the needs of modern-day society. The overhauling of bureaucracy is a Herculean task but that is a pre-requisite for speedy and healthy growth.
5. Finally we need a strong centre that cares for all of India and Indians. We need to have a better functioning state apparatus at the centre. It should be able to provide a functional legal system throughout the country to deliver speedy justice.

There are new concerns haunting our world. It is frightening to see that, even in the 21st century we have violent nations that use war, genocide, ethnic cleansing and other bloody practices with a hope to integrate and homogenize societies and strengthen state structures. We need to find way to curb such mistaken enthusiasm at least in Indian states. Modern technology, if used with wisdom, would help us reach that goal faster but here too, blind faith would prove dangerous. No technology by itself is a panacea. Human society needs to remain humane and alive to the needs of the weak and the handicapped.

We often blame population growth for ills like poverty, unemployment, and even environmental pollution and our indebtedness. No one however has given a thought as to how countries like Japan, China, and Germany are surging forward in

spite of higher population density than ours. I visit China often these days. It is interesting to notice the contrasts. Whatever is created in China with public money by way of infrastructure like roads, bridges, highways, airports, bus depots and train stations is of high quality and carefully and thoughtfully executed. Situation in India is exactly opposite. Everything in our newly built infrastructure with public money drags on and sans quality, carelessly built, shoddy and left half-done for ever. In spite of two generations growing without religion, moral values and social ties of common Chinese people are very similar to ours. In a way they are benefiting from their kind of secularism.

The 21st Century is still an outstanding opportunity for India and to benefit from it we need to change and that change has to begin with rural young as was realised by Gandhiji. Today most western nations have a fast growing aging population and they are worried about the lack of productive youth population. We have 500 million youngsters below the age of 25 and majority are rural poor children. It depends on us to turn this into our national resource or make it a liability by ignoring to carefully groom them. If we are smart and careful, these youngsters can prove to be our unprecedented strength and an asset. They could be the most powerful solution to all our ills.

EDITOR'S COMMENTS

It is my pleasure and privilege to present you a select range of articles written by the author over the last 25 years. Editorially these are logically grouped together in five chapters to focus on a wide spectrum of topics knitted together. They provide wealth of information, knowledge and wisdom from a person with an extremely innovative and creative mind, management skills and a high order of social sensitivity. Every article has some criticism but also embedded in it is a solution. It has been a fascinating experience for me while working with the Author for the last three decades. He is a person in a perpetual search of solutions. I have been a witness to see how the Author made gold of the opportunity he got to be of service to our nation. Over the years I have carefully preserved his writings from the early 70s. Since these pieces are written over a long span of three decades, I thought of making some introductory comments for each that will help readers to have a backdrop and read the articles with a proper perspective.

The title of this collection, "Is anyone Out There?" is a reflection of a deep frustration of many of us that not many who could benefit from these thoughts are in a mood to listen or even debate what the Author has to say. For those who could really benefit from his words and who govern the country have their own agenda. Many of them are busy gathering wealth in every way that they can, some are busy guarding their own power bases, some in keeping themselves visible and most of the others stitching one day to the next and just flowing with the current. On one hand, India is displaying a consuming craze for possession and instant gratification and on the other hand; Bharat is forever busy making two ends meet and fighting growing uncertainties, social injustice, unrest and an all-encompassing overwhelming neo-Orwellian bureaucracy. The electronic Media feeds on disasters and crime to fill 7/24 transmissions and delivers programs catering to potential customers in India to attract advertisers. The poor continue to be ignored till some news worthy tragedy hits them. None of these types would probably read this collection and debate relevant issues. Everyone in 'Rising India' wants to wish the poor away since they are a hindrance to fast growth of the country's GDP even though 80% GDP is enjoyed by just 20% of Indians. Declaring famine in rural Thane, just 50 km from Mumbai, the financial capital of India doesn't disturb the ruler's dream to overtake Shanghai.

"Is anyone Out There?" is brought to you with a hope that some one or the other out there might want to benefit from one or the other concepts that the author discusses and analyses in great detail. A rare empathy lacking in today's times is visible in the author's works.

Enjoy reading it as I did. It is pungent but tasty.

Vasant B. Shejwalkar

CONTENTS

India's Move into the Knowledge Age	1
1. Electronic Industry in India in 1975-76	2
2. New Policy Initiatives for Encouraging Healthy Electronics Industry in India	10
3. Computers- A Golden Opportunity for India	20
4. Indian Electronics- A Way Forward	27
5. CeBiT 89 Brief for Rajiv	33
6. Quo Vadis: Delhi Blues	39
7. IT 'Flu' is Expensive	50
8. Pampering Our Software Havamahals	55
9. Hay RAM	59
10. Pull Computers out of our Schools	62
11. Indian IT Sector- No Industry: Just Service	68
12. The Great Leap Ahead: China, not India will become a Global IT Superpower	75
13. Is Tax Shelter to Information Technology Business Justified and Desirable?	82
Electronic Media- Much Ignored Change Agent	87
1. Telecommunication and Culture	88
2. National Broadcasting Policy needs rethinking	95
3. Do we need Children's Television Act?	103
4. Taking Bharat in the Information Age	107
5. Autonomous Bureau for The Electronic Media	115
6. Samvad Vahini, Thane- A Concept for a City Channel that can work	120

Human Capital will always Prevail	125
1. Concept of Education	126
2. Managing without Worker Discontent	131
3. The Core of Quality is the Attitude	140
4. Enthusing Innovative and Creative Minds	145
5. Life Options for Today's Young Indians	151
6. What makes Business Leaders click	156
Solutions that may still Benefit	160
1. Reviving Technology Mission	161
2. Franchise in Manufacturing- MTB Plan	164
3. Commercial Electronic Media to Spread Literacy	167
4. Farm Animals- Another Form of Solar Power	170
5. Efficient, Fraudfree and Profitable Management of Small Bank Accounts in India	174
6. Fast Growth of Blue Collar Jobs	179
7. Cooperative Brand Building by Retail Business	185
8. INDIA+CHINA Policy is a Good Strategy	190
Some Convictions	194
1. Me- An Engineer	195
2. The Engineers- The Change Agents	199
3. Crystal Gazing	203
4. Fruits Of Labour	210
5. For Sale- Awards and Honours	213
6. A Recipe for Soul Liberation	216

One

**India's Move
into the Knowledge Age**

1976

(This is author's first published commentary on the Indian Electronic Industry. This paper was published in the 'Illustrated Weekly of India' in 1976. It will interest the readers to know that this paper won him a prize catch, a personal friendship with Shri Rajiv Gandhi which eventually led him to write another comprehensive paper in January 1983 for Mrs. Indira Gandhi).

ELECTRONIC INDUSTRY IN INDIA IN 1975-76 ANALYSIS

The fast growing, glamorous, magical and somewhat menacing Electronic Technology is unique in the world in many respects. The common man, who is experiencing its impact in his everyday life, is awed and pleasantly surprised every other day, by the new magical products delivered by this wonder-technology. Unlike a Sewing machine or a bicycle, any electronic household product like a television, a transistor radio, a tape recorder or a car stereo, is a 'Black Box' to a common man! The only thing he knows about these products is that they are expensive gadgets, and fears consequences if anything goes wrong with them. This distrust provokes him to a safer course of buying the so-called reputed product. To an average Indian Consumer, any imported brand seems to be superior to any Indian make. Though it is certainly not true that all that is imported is good; most of the Indian products do lack desired reliability, finish, quality, performance and workmanship that most of the internationally reputed products possess. Consumer satisfaction in terms of quality and price or rather a quality at a price – must be the basic criterion to judge the usefulness of any industrial activity. The Electronic Industry in India seems to have failed to achieve this primary objective. Though the rate of growth of this industry in India may impress an economist, the real health of the industry is far from satisfactory, from the point of view of consumers in the Country. Performance of the industry that can afford to ignore consumers must be a

matter of great concern to all of us.

There is a basic problem on account of the way this industry has evolved in India. Most of the private Indian Industry is trader driven and most of the industrialists are former traders who turned to manufacturing due to import ban. Similarly the Public Sector is managed either by bureaucrats or scientists with no insight for industrial management or engineering business. Unlike the industry in US or West Germany, we have no focus on technology and no need to learn to survive in the competitive world. All our ills are the result of this basic inadequacy.

During 1976-77 total Electronics Industrial Output of the country is claimed to be over Rs. 300 crores which probably also includes the production of products like Telephone equipment. The industrial output showed 18% growth over the previous one-year period. These figures are rather misleading, if we carefully analyse the performance of the industry in India, against the background of the international scene. In fact, the real worth of the industrial production then is not even 1/3rd of what is claimed. A study reveals that, on an average, the Indian prices for electronic products, whether consumer or professional, are about three times those of international prices. Thus the 1976-77 industrial output of the country, when put on an international scale, is worth less than even Rs.100 crores. If we take into consideration the fact that even the City-State of Hong Kong, which entered the electronics field around the same time as India, has an output of about Rs.600 crores during the same period, one would realise how poor our performance is. Moreover, this 600 crores production from Hong Kong consists among other things, pocket calculators, which are sold from Hong Kong at a price that is nearly one sixth of the Indian consumer price. If we put the Hong Kong production on Indian consumer price scale, then it is about twelve times that of India. These figures thus reveal the untold story.

It may be further noted that the profitability of Electronics Industry

in India, as reflected in the available balance sheets, is not very high. On the background of our low labour cost and lesser overheads, even after due consideration is given for small production runs and import duties and taxes, this is alarmingly low because the prices realised in the home market, are exceptionally high. For instance, the average margin on a pocket calculator maker in India is about Rs.100/-, whereas a Hong Kong manufacturer of a similar calculator has it less than Rs.10/- per calculator. Import ban allows this injustice to buyers. Indian market for calculators would be 1000 times if prices are same as in Hong Kong. What applies to calculators also applies to many other products.

For achieving rapid Industrial growth the role of our Government has to change. It has to be merely supportive and not oppressive control. Immediately after independence, the Government adopted a very creditable policy of grooming the budding industry with the necessary protection and patronage. In subsequent years, however, this protection became a shelter and stunted the growth and caused a great harm. Sheltered from the sunshine of international competition and expertise, the industry hasn't keep pace with the rest of the world. Over-protected children are known to lack guts and toughness, required to make a mark. Over-protected electronic industry is no exception. Our enterprise today is limited to the cunning exploitation of this shelter, given by the Governmental policies. Our present lack of export efforts, in spite of Government incentives, indicates that the industry today is unwilling and afraid, to tread beyond this shelter. If the Government today can afford to delay, stall or simply avoid taking decision on specific projects or broad policies, it is due to the fact that the industry can survive because of a high priced, protected home market. It is in no way endangered by such lapses on the part of the Government. In fact such delays are advantageous to the industry. Both, the Public and the Private sector industries in India, which 'uses' such delays, makes a scapegoat of the Government for hiding its own shortcomings.

Government's decision to make import difficult immediately after the independence was to encourage the generation of local technological skills. The Indian Scientists, Engineers and Technologist, who took up the task of developing the local technology, had a lot of pride and commendable nationalist spirit. Unfortunately they totally lacked in facilities, funds and industry backing. In addition, the galloping pace of advances in electronics technology in the world made it difficult for us to catch up. Such R & D efforts further suffered due to the red tape. Indian Engineers and Technologists working in our national labs mainly create paper projects. Designs lack thoughtful product engineering and attractive packaging to take these products to production floors. The scientists turned bureaucrats sitting in Delhi seem to know little of the dynamics of this modern technology and its industrial relevance. Bhabha Commission did improve the situation, but primarily in Nuclear Technology and now in space technology. The rest of the Industry benefited just moderately. Department of Electronics actually is negating that spirit and thus failing to put the industry on the right track. Like every one of us, they also started blaming the situation in time, power and monetary domains. The fact is, they have been unsuccessful in removing even certain basic errors in the present import policy, like, exceptionally high import duty levied on some of the raw materials, than that on the finished products, some of which are even duty-free.

Many criticize the Government for heavily depending on scientists and professors for framing the industrial policies rather than technologists and engineers. Since there are no industry stalwarts and technologists with industrial expertise in the country, it probably leaves the Government with no option, but to depend on its scientists. We feel that some policies, like de-licensing the consumer electronics sector; liberalising the use and manufacture of wireless communication facilities for the private citizens; appointing empowered technical personnel to manage the Public sector undertaking more professionally on a contract basis, with

clause for cost effectiveness, etc. would help.

For instance, the present policy treats the wireless communication as a 'secret art' reserved for the federal agencies. The Government's refusal to give manufacturing licenses to the private industry for communication equipment and adopting difficult and expensive procedure for the use of such equipment by citizens managing private enterprises has stunted the growth of electronics in this country to a very great extent. Liberalisation in this respect would be extremely beneficial to everyone including the common man, the Government and also the industry itself.

Today the entire market for electronic goods in the country is directly or indirectly controlled by the Government. Basically for all professional items, the Government is the largest single buyer. Even in the case of the consumer electronics, demand for merchandise, such as Radios and Televisions, are indirectly controlled by the Government by deciding the location and the power of transmitting stations, as well as the quality and choice of the programmes. Therefore the overall policies of the Government in this respect would directly affect the industry. We feel that in order to limit the financial commitment of the Government and yet achieve a spectacular increase in the number of Radio and Television transmissions as well as to improve the quality of programmes transmitted, the Government should turn commercial and transmit commercially sponsored programmes which are regulated in quality by an independent group of responsible experts to maintain high cultural and aesthetic standards.

India is the only country in the world today where capital is made available to anyone on such liberal terms. However many small enterprises and specially those, which are highly technical in their contents, have failed to perform satisfactorily. In the process, the investing financial institutions have suffered. The so-called technical entrepreneurs have proved that they lack the necessary expertise to make their project a commercial success. Their

experiment is carried out at the cost of the finance provided by the Government's financial institution, which do not have adequate machinery to properly assess the technical and the commercial viability of the project. We feel that in the case of small scale industries which are fully financed, by the Government through its financial institutions, as in the case of Technical Entrepreneurs, such finance must be given as an investment. State Electronics Corporations should operate more like venture capitalists and keep a techno-commercial watch on the small scale units till they are profitable. The technical entrepreneur should only be a profit sharing partner who has full authority to control his organisation both technically as well as financially. He should, in fact, serve as a Technical Managing Agent. Today these advances are only marginally better than the agricultural loans given to farmers. Getting a loan from a bank without a collateral makes these Technical Entrepreneurs careless and do not manage the industry carefully and imaginatively to ensure the success of their project. In addition to the financial assistance, this sector of industry really needs the technical and techno-commercial guidance. The Government/bank officials with their inadequate industrial experience are unable to provide this much needed insight.

Prior to independence, electronic industry in India was limited to trading representation of international manufacturers. Early industrial policy of protection to domestic industrial efforts and also restrictions on imports forced this trading sector to enter the manufacturing industry. This protection had already removed any incentive for quality, or customer satisfaction, which further provided the green pasture for attractive prices. It helped the industry, both in private and public sector, to become too fat to be swift and mobile enough to handle this dynamic 20th century technology. Unjustly however it is perpetuating the problems of consumers. Though on one hand the consumers are suffering poor quality and high prices, both the Government and the industry on the other hand are celebrating their performance, both in financial and technical terms.

The industry often complains of the quality of man power in India. After a closely observing the international scene, we are convinced that the intrinsic quality of manpower here is the same, if not better as compared to anywhere in the world. What we lack is social discipline, motivation and man management skills. We are poor managers. In the public sector some of the senior Managers are the deputed staff from the parent Ministry and are in their jobs due to their original departmental seniority, rather than a specific aptitude or experience to control the industrial activity. Even white collared MBAs merely provide a white wash in a new vocabulary devised by the modern management quacks.

Under the umbrella of protection, Government's Public Sector Electronic Industry is profitable and growing like many other Private Indian Industries. Unfortunately, like its private counterpart, this sector also has sheltered behind the protection given by the Government, and prices its products to a profitable level without taking any cost-effective measures to be internationally competitive. The present policies of the Government, have totally removed the motivation for international cost competitiveness from these Public Sector units. This sector, in many cases, also enjoys a monopoly and is thus protected even from the Private sector industry within the country. This unique situation must be a matter of envy to any industrial enterprise in the world. If the philosophy were only to create job opportunities for the people, then the whole matter would get a different meaning. It is interesting to note that even with these high prices, per employee production of many of these units is less than Rs. 50,000/- per annum. The capital employed is not rolled over even once. In fact, this sector has a number of exceptionally qualified and potentially competent personnel, but it lacks efficient management with vision and the right of freedom to act.

The present public sector organisations are 'big' only in terms of manpower employed as well as the capital invested. None of these units are, however, big in terms of realising the benefits of being a large company. Though the capital employed and the turnover

is big, it is thinly spread over a large group of products, the quantum of each product being too small to justify the administrative overheads of a large organisation. Therefore, the so called big public sector undertakings end up in a situation wherein they have limitations of a small company with limited production runs due to the limited demand, whereas, they have the complexion of a big company with large overheads and less mobility due to elaborate procedures of their bureaucratized operation. Generally a large international company of an equivalent size concentrates on a specific group of products with high volume runs and an extensive specialized R & D support. As it is impossible for an industry to increase the volume of domestic demand for its products beyond a limit at a given price or quality, the only solution before the government is to make them export oriented meeting the huge global demand. That will be the best way to set an example for the private industry in the country.

1983

(Since early 1981, the Author was a regular visitor to Delhi to assist Rajiv Gandhi in his new role in public life. Rajiv knew author's frustrations as an engineer-entrepreneur and, through him, learnt the ground realities affecting Electronic Industry growth due to unrealistic industrial policies of the Government. He showed how unhealthy technological isolation of India in Electronics due to policies of self-reliance in everything and that too by primarily using Public Sector companies as monopolies. Manubhai Desai, who introduced us and who was my constant companion and supporter, was an integral part of our team. Over five years of association helped the author and Manubhai to make Rajiv aware of the problems that stopped us from real growth. In early December 1982, in an informal meeting with Smt. Indira Gandhi with Rajiv in the P.M. House, the author got a chance to open his mind about the inappropriateness of the National Electronics Policy prepared by the DoE and the Electronics Commission. He talked about rationalization of import policies, liberalization of technology import and foreign participation and de-licensing of the Consumer Electronics Sector. In response, she asked both of them to submit a note.

On 16th August 1983, the new Electronic Policy was unveiled primarily based on the Note given to the Prime Minister by the author. On 25th August 1983 Author and Manubhai decided to link this success to Rajiv and called 50 CEOs of Public and Private Sector companies and the Press at a reception in Ashoka Hotel and to meet Shri Rajiv Gandhi. From that day began Rajiv's reputation as Technology Savvy Person adding to his USP and overall charm.)

NEW POLICY INITIATIVES FOR ENCOURAGING HEALTHY ELECTRONICS INDUSTRY IN INDIA

NEW POLICY INITIATIVES

Chapter I

I OBJECTIVES

The suggested policy shall help to achieve the following objectives:

1. To stimulate the creation of a large Electronic Industry producing merchandise of international quality and at competitive prices.
2. To achieve multifold increase in the export of Electronic Products.
3. To increase employment by creating new job opportunities.
4. To generate larger revenue for the Government through rapid growth in Industrial output.
5. To grow the business in Computer Hardware & Software Development sector.
6. To make use of Electronics, Communications and Broadcast Technologies for faster growth and better functional efficiency.

II ANTICIPATED RESULTS

The suggested policy is expected to show the following positive consequences:

1. Help the development of state-of-the-art technology base in India (both in design and production of electronic products and services)
 - a. Assimilate the imported technology of production.
 - b. Stimulate Indian technology contributions generating new products.
2. Industry would be able to produce high quality and reliable products at competitive prices that can be sold worldwide in a very large volume and with equal ease in the domestic and the international market.
3. Shall remove any need to follow the present policy of protection through high tariffs and also the need to give cash support to exporters.
4. Create a large employment for our inexpensive and abundant manpower as well as provide challenging opportunities to our highly educated scientists and engineers especially in R&D and Computer Hardware & Software segments.

5. The gradual exposure to the international market and competition will educate the Indian Industry to be cost effective and will be forced to become efficient and conscious of quality and reliability aspects.

III KEY POLICY RECOMMENDATIONS

a) Remove artificial barriers between the Domestic and the International Market to stimulate rapid growth in exports.

The first step would be to reduce the import duties and the excise on all industrial inputs and intermediates for component production making local component prices matching international level. This will make market for the components and systems global and not limited to domestic. Compensate the loss of revenue due to the above, by increasing the excise only on the industrial end products sold within the country.

Further simplify the export formalities by eliminating the import licensing procedure for export trade and allow temporary pre-shipment, free foreign exchange credit. Prevent the misuse of such liberalization by enforcing severe penalties and fines.

b) Allow Free Inflow of International Technology

Allow free import of production technology wherever the industry undertakes an export obligation. Such liberalization may have to be supervised and misuse if any should be firmly dealt with severe penalties and fines.

Foreign enterprises should not be allowed to sell in real terms, designs or the technology created by them to Indian companies they own. It is recommended that we allow international companies of repute to set up industries in India and also allow them a controlled share in the domestic market. It may however be appropriate to insist, on nearly 100% Indian employment, as done at the present moment. This will enable our engineers to use current technologies.

Provide attractive incentives and excellent modern communication

facilities. Modern communication facilities are essential in the field electronics R&D and computer software. Selectively, we should offer these to international companies, who are willing to set up their research & development laboratories and software development centers in India. There are many who are willing to take advantage of free availability of the low cost but very highly educated Indian engineers and scientists. This will also serve, as an excellent manpower training to generate much needed industrial culture.

c) Choose the correct order of developmental priorities

Give priority to the end product industry over the component manufacture in terms of promotional efforts. For example, Initially promote end product industry since it has higher value addition and needs higher creative and design inputs than the component industry..

Promote the computer hardware assembly & Software industry on a priority.

Accord special incentives to industries pursuing state-of-the-art designs based on international quality standards and techniques.

Computer Industry has to be encouraged and wide use of computers in the country should be promoted. It is vital for tomorrow if not now.

d) Progressively reduce the Tariff Protection to import of Components, equipment and Systems over the next 5- Year Period

Due to the protection since last 20 years, the domestic industry has become too weak to face international competition. Hence, it is essential to reduce the rationalized duties progressively giving time for industry to adjust. We need to immediately remove ban on import but duty level need to be reduced gradually. Protect the local industry through import duty level but not by banning.

The tariff protection, if necessary, should also be given through

higher rate of excise duty on the finished product but simultaneously the import duties on the inputs have to be brought down immediately to allow industry to have competitive export prices. Since there is no excise on exported end product, the industry can export without any need for drawback formalities.

The import duty on the electronic components that is presently as high as 140% should be reduced in a gradual fashion to 15% to 20% over the next 4 years.

The duty on the complete equipment and systems should be increased to 100% and then progressively reduced to 30% over the next 4 years while always keeping it higher than what is available to the component industry. This is necessary because there is large number of industrial inputs like steel, aluminum, copper etc which are priced very high in India and this high cost cannot be easily offset.

e) Delicense Consumer Electronics Sector

Security consideration and self-reliance are the two reasons due to which electronics is considered as a strategic sector in India. May be in the high technology areas like the defense, space and nuclear fields the Industrial licensing and capacity approval may be relevant but in consumer sector, we need large industries with fast growth. This will generate healthy component industry and also give the government large revenues. Mass produced consumer products will drive this sector and in a short time it will give India global opportunities. To achieve this Consumer Electronics sector should be decontrolled and de-licensed.

Today products like the television sets, tape recorders and music systems are being purchased by the people with unaccounted money, if they have it. Free availability of the consumer electronics goods will thus help us mop up this money and pull it back into our banking system.

f) Promote Concepts like Collective Shopping by SSI Sector

Due to the fragmented and small production capacities sanctioned

to large number of small-scale units, none of the small unit by itself is in a position to create large enough demand for their products resulting two problems:

The small quantity of requirement of individual unit makes it difficult to shop for parts & cost effectively buy them in the international market.

The small quantities required by the individual units do not generate any interest either in foreign supplier or for imports substitution.

The policy should promote either ETTDC or an association of small-scale industries producing similar items to collectively shop for the requirement of the parts through standardization of the components used to create a justifiably large demand both from the point of view of cost effective purchasing as well as creating import substitution.

g) Guard the Consumer Interests at policy level

Protect the weak domestic industry only through rationalization of tariff and NOT by banning of import competitive products. The quantum of tariff protection should be progressively reduced as efficiency of the domestic industry grows.

Impose quality and safety standards thru' a suitable organization such as those in the western countries: for example, the UL in the USA or VDE in W. Germany.

Chapter II

BRIEF REVIEW OF THE PRESENT STATUS

POLICY OF PROTECTION:

Though the policy of protection was valid in the earlier years of industrial development but at present it seems to cause more harm than good to the domestic industry. Protection to the domestic industry has been given by:

- Banning import of components and equipment produced in the country.
- Distributing domestic licensed capacity through reservation, quotas (and causing consequential fragmentation)
- Imposing very high import duties to provide tariff protection to the Indian manufactured products.
- Supporting poorly managed sick units through subsidies.

LACK OF RATIONALIZATION OF IMPORT DUTY TARIFF:

Import duty on the components is levied at various rates ranging to 140% whereas the import duty on the finished good ranges from 0% to 40%. This acts as a disincentive to invest in the domestic equipment industry.

The medical electronic equipment allowed with Nil Duty with an additional benefit to import such equipment freely without license. The parts needed to make these products are charged at 140% import duty. Indian businesses can never survive and no one would invest in such ventures.

SIZE OF MARKET:

DOMESTIC MARKET

India's production is below 0.25% of the world production. In spite of such a small production, most of the Indian manufacturers find it difficult to grow and have to work at much smaller levels than their approved manufacturing capacity. The total domestic market is small because of the following limitations:

Most domestically produced electronic items are two to five times more expensive than the international products of similar type and therefore, out of reach of a large market segment.

High local prices make smuggling profitable and therefore rampant especially in consumer goods. It is bound to be so but it is getting larger and further reduce the market share for the domestic goods.

INTERNATIONAL MARKET

The International market would have been a solution to remove the limitation of market size to an Indian manufacturer, if it had an easier access to the international market, as easily as his counterparts in other countries. The policy of protection has already caused substantial damage to the intrinsic ability of the Indian manufacturer to face international competition.

In addition, the unreal labour laws and difficulties due to poor infrastructure are making investors shy away from establishing large industries in India even in the duty-free zone. In effect, there are not adequate incentives for the private sector to establish export-oriented large industry.

Due to lack of appropriate modern technology as well as due to lack of proper quality-conscious industrial culture, the Indian products are inferior in quality and finish.

Power shortage, transportation difficulties, port congestion, postal delays and many handicaps result in inefficient production planning and this disable industry to meet the desired performance that is critical in the international market.

PROBLEMS ARISING OUT OF LICENSED CAPACITY:

The Government does not allow businesses to be market driven. It decides on peak national consumption and distributes these capacities through reservations and quotas to public sector undertakings, organized private sector undertakings and small-scale units in conformity with its socio-economic policy. These

licensed capacities created two-fold problems:

In almost all the cases, the sanctioned capacity is too small from the point of view of promoting efforts towards import substitution, of implementing quality assurance concepts through proper engineering practices and cost effectiveness due to mass production.

SMUGGLING:

The heavy import duty on electronic components has made smuggling of such components a very profitable proposition. With very high duty on electronic components coupled with banning of many others, the smuggling of electronic components is rapidly growing. The dimensions of smuggling are so high that the domestic component industry is suffering a tremendous set back.

SOME REALITIES

The huge infrastructure in the form of Department of Electronics, the Electronics Commission and various State Government bodies created to nurture the electronics industry in spite of its tiny size and poor performance, is not as effective as desired. The focus is not adequately techno-commercial and has lacked awareness of commercial realities and the developmental potential of the Electronics and Telecom Technologies for the country.

1. Even if one agrees that the policy needs to be drastically changed, it is difficult to implement sudden and sharp changes or in some cases, even complete reversal of the existing policies.
2. It is clearly understood that the Electronics Industry in India is not strong enough to face international competition through sudden liberalization of imports. The industry will have to be put back in good health *through gradual policy changes over the next 5 years to remove the tariff protection.*
3. In the case of most of REFORM REPORTS made in the past, it is observed that the recommendations have been open-looped. They do not define exactly the mechanism of

how the recommended policies would affect the existing industry and how it would effect the desired changes, both in terms of time frame as well as with a properly laid out cause and effect format. In a sense, therefore, these recommendations have been rather arbitrary. This paper has addressed these issues.

4. The main theme of the policy recommendations is to make Indian Industry grow internationally by making industrial inputs to the electronic industry as inexpensive as anywhere else in the world by eventually removing all direct and indirect taxes and duties on such inputs. It is also claimed that financially, the Government would benefit in spite of the reduced revenue due to the progressive reduction in the current level of import tariffs and other taxes. This is possible because today Government buys back more than 80% of the total industrial production in the field of electronics and the electrical industry and the prices that the Government pays for the end-products, which are at the present moment 3 times the international prices, will substantially come down effecting far more savings in the Government expenditure as compared to the loss of revenue involved.
5. The greatest advantage of making the industrial inputs of this industry on par with the world prices would be to remove the biggest handicap of the size of the market faced by the industry to achieve cost-effective production volumes by widening its market throughout the world.

1987

(The Prime Minister Rajiv Gandhi desired to inform non-professionals in his Government to understand the reasons for our focus on Information Technology. As an Advisor to the PM, the following note was created by the author which was later circulated to the Cabinet Ministers, MOS and senior officials of the related ministries as desired by the PM.)

COMPUTERS – A GOLDEN OPPORTUNITY FOR INDIA

Several social and economic studies have clearly shown that advances in computers and communications field and their confluence shall have a profound influence on working environment in commercial, social and industrial sectors of every society. Of all the new technologies, these two are certainly going to deeply affect our life at work place and also at home. The open arm enthusiasm with which People's Republic of China, USSR and other socialist nations are trying to use the computers should make us realise that computerization is not just a western concept but a global need. Efficient management of information with computers is of value not only in businesses but also for good governance. These technologies are here to stay and India too must make the best use of this wonder science to speed up the progress. Computers have been at the doorstep of every country & none can afford to close its doors to this technology out of fear or any other sentiment. Today computerisation is not only a must but it is also unavoidable.

Computers are, going to be the 'agents of change' in our life style of tomorrow. A change is never without inconvenience, but we have to get over such hurdles and carefully plan to use computers very widely. Our Prime Minister has asked us to prepare ourselves to get into the 21st Century a decade later as an informed modern nation. We are late but there are lessons to be learnt from the countries ahead of us. In a sense, therefore, we have an advantage in being late in large-scale induction of computers in our society.

This unintended delay has also saved us a lot of money. The prices of computers, for similar computing power, have considerably dropped over the years & this process will continue. Heart of computing is the software that helps us to use them for various applications. Indians have shown a special insight in this field and that skill could be helpful for us to benefit from. May be, one day, India could create its own operating system like the DOS or something similar and not only bring the cost to an affordable level but also to have it in Hindi.

Today there is a rich diversity in application of computers which go far beyond the level of business data management. It has touched the very core of scientific & technological innovations: design & simulation of surface transport vehicles to high speed aircraft's before creating a physical model, medical imaging, and development of advanced structural, electronic & optical materials are today possible using computers. Today, computers are directly & effectively linking engineering analysis with product design & manufacture. Vital predictive methodologies such as weather forecasting & national or even global economic modelling are a reality. India can use these new technologies as our tools for rural development. Mission approach could be a way to do it in an organised manner,

REASONS BEHIND LACK OF USE

It is a pity that we have not yet taken a well thought out initiative to gain entry into this challenging field. We are getting bogged down under our imagined fears and proverbially speaking we are digging our heads in sand. One problem that one always encounters in relation to new technologies is the sharp division of opinions on their socio-economic impact. When the technology is as glamorous and as magical as computers and when the anticipated changes are likely to be as profound and as extensive, then the conflict is even deeper. The fear and emotions seem to cloud the real issues. We are today going thru' that painful phase.

Another problem in accepting computerisation is that the young

computer professionals are experts but speak in different languages that traditional senior managers can't fathom. They can't communicate effectively with the real world managements – businessmen, administrators & industry leaders. It is indeed possible for our institutional leaders to learn using computers rather quickly. Our Government officials in Administrative and other services have to take to computing. For these bright brains it would be a very easy task. When this happens, benefiting through computers would become far easy.

It must be admitted that the current dream of 'computer age' by some enthusiastic groups does appear rather exaggerated & unrealistic. But, at the other end, some at senior management level think of them merely as a current fashion while others, especially the middle management and senior employees, seem to fear them. Such fear or confusion is caused by lack of factual data and a correct perspective. We should not allow this to cloud & overshadow rational understanding of this new tool in our hand, nor should we forget that it is just a tool & man, like always will remain supreme.

Popular sentiment is that using computers leads to loss of jobs. Shri Bagaram Tulpule is rather famous Trade Union Leader. While delivering the first V.V. Giri Memorial Lecture in Lucknow in November 1986, he made some observations which need to gainfully made use of to ease such mistaken notions. Concluding his speech, he said that it is neither possible nor desirable to simply turn our back on automation and computers. He further specifies areas where computerisation is essential. He mentions defence, space research, handling data & statistics relating to national economy, dependable & speedy communication systems etc as some of the examples. In the manufacturing industry he lists efficient inventory control & optimal production & maintenance scheduling in large enterprises, PERT & Critical Path Analysis of large projects & so on. He supports computerisation, even at the cost of marginal displacement of jobs in industries where computer control could yield significant benefits in quantity &

quality of output. Computers, he acknowledges, are amazingly powerful tools but also warns that they are just tools, all the same. These arguments should be effectively used by the planners and politicians. Computers will in fact create new jobs in much larger number than the jobs lost. Long time ago Italian tailors almost killed the Italian inventor of sewing machine, thinking that tailors will lose their jobs due to his invention. Then the whole world saw Sewing machines creating even larger need for tailors than ever before. While inducting computers even the Italians did so without batting an eyelid. Today Chinese are at it, notwithstanding the so-called job-rob scare. Let the wise counsel prevail here too.

COMPUTER PROFESSIONALS & COMPUTER USERS:

Computer education is yet another subject that is adding confusion all around. It is necessary that almost everyone is able to use computers for personal efficiency but that does not mean that every user has to be a computer professional. Does one have to learn pharmacology to take a headache pill? Does every car driver need to learn automobile engineering? If just one percent of our population were to be computer professionals, it is enough for 100% of us to benefit from its use. In fact, if just one per cent of Indian population, that is eight million plus youngsters, become computer professionals, the entire world need not bother about writing programmes for computers. To use a computer for personal efficiency needs just a week's hands on use of a PC. But a lot of computer enthusiasts and computer institutes that are mushrooming around the country are making people, especially our youngsters, nervous. We are thinking, how to stop ill-equipped, poorly staffed Computer Training Institutes from misleading the naïve but anxious students and their parents.

Computer Technology, especially the software development, could certainly be a golden opportunity to get ourselves right at the front of others. If the Far East has offered the western world, a highly tuned base for high quality mass-manufacture, let us create environment here whereby the western world, as well as the new industrial giants in the east like Japan, can look to India as a

source of software and the “intellectual property” associated with it. This may appear highly speculative today but when one looks the Indian engineers & technologists contributing to the success of any number of enterprises in North America & Western Europe, one should easily feel more confident.

We, as a country, have been constantly trying to catch up with the developed world. We must admit that we have missed many buses during the last three decades. In our quest for self-reliance in everything during the 70s, we lost many opportunities to work with the world. Today, catching up with Taiwan or South Korea or even a city state like Hong Kong, looks like a big challenge. In spite of policy liberalisation of 1983, the policy of protection and lack of domestic competition seems to continue under pressure by the private sector. This has to change. Department of Electronics cannot by itself do much in redressing the problems of the manufacturing industry unless the industrial, commercial and financial planning of related ministries is dramatically restructured with a policy thrust on exports.

Whatever initiatives Prime Minister took in 1983 with the new Electronic Policy and later his focus on Software Industry as reflected in Software policies of 1984 and 1986 have vastly improved the growth rate of the Electronics and Computer Industry and we have been nearly doubling our output every other year. We are, however, still a non-entity in the world of Electronics, Computers and Communications. In spite of this, one can see a significant growth opportunity for India in the fast emerging ‘Information’ Technology encompassing micro-electronics, communications and computers technologies. We see a great role for India in software and semiconductor design.

During my recent visit to Stanford University in California, I met a group of Indians working in high positions in America’s fast growing computer companies like IBM, DEC, National Semiconductors etc. along with Prof. Tom Kailath, a big name in Stanford and my classmate during our graduation days in Poona.

There are a significant number of Indians; many from IITs, who have been climbing fast on their respective corporate ladders. Some are close to the top. I asked them how they could help Rajiv Gandhi to realise his dream of speeding up comprehensive development with the technology as a tool. I told them the ambitious beginning we have made with National Informatics Centre but pointed out that we are still looking inward and limiting it to within the government. We need the international expertise to find right solutions. We discussed many options but nothing significant has emerged so far.

Computers and communications are pervasive and interactive technologies. It is time for us to analyse the matter and look at our strengths and weaknesses in the computers and communications area and then identify the opportunities and threats; a SWOT Analysis will be in order.

STRENGTHS & OPPORTUNITIES:

- Right manpower is our best strength. Easy availability of youngsters trained in science and mathematics at tenth the cost in the US and our proficiency in English gives us an edge over the Far East.
- Contributions being made by the Indian compatriots to the America's global success in computer software and its applications has developed a favourable image of Indians in the US and Western Europe.
- We have not yet 'missed the bus'. Our late entry in fact could be looked at as a blessing in disguise. (Crash of prices, better technology, mistakes of others to learn from etc).
- What the Pacific Rim nations are achieving in Electronics Hardware Exports, we in India can achieve by building export oriented software industry. Software parks that we are promoting in Bangalore, Poona, Hyderabad and Bhubaneshwar need to be sold well.
- Low cost, high-speed Communication links being now established between India and Europe and America will help

closing the gap of geographical distance of tens of thousands of miles.

- Time difference of almost 12 hours would enable us to achieve a 24hour business each day with little extra investment.
- Bases created by the NRI's in businesses in the US could be gainfully harnessed to launch our selves in that market with a greater ease.
- To some of our senior politicians and even the bureaucrats, use of computer technology still seems to appear irrelevant and even looks like a threat. We either need to convince them or else ignore them. I think Computer Industry offers us an opportunity that we shouldn't miss. We can be a World Player if we play our darts well.

WEAKNESSES & THREATS:

- High Prices of Computers and poor telecommunication infrastructure within the country is hurting large-scale computer usage and computer training. 'People's Computer' project alone isn't enough. Much needs to be done.
- Lack of easy access to computers and hands on experience is adding to unnecessary fear and also adding to administrative procrastination.
- Communication gap between the young computer professionals and the seasoned business leaders and administrators from the industry and the government is delaying reaping of benefits out of wider computer usage and application.
- Overselling and over-promise by computer zealots has caused employee resistance, user disappointment and protests.
- Lack of local language use on computers is limiting its utility in rural applications.

1987

(An extract from the Vikram Sarabhai Memorial Lecture delivered by Shri P.S. Deodhar, Chairman, Electronics Commission at IETE Ahmedabad on August 12, 1987)

INDIAN ELECTRONICS- A WAY FORWARD

Dr. Vikram Sarabhai and his impressive contributions to planning in the use of electronics for social good have prompted me to carry the torch and perpetuate the cause to the best of my abilities. Dr. Sarabhai was an exceptionally gifted and a highly experienced scientist. But, like in the case of Dr. Bhabha, his effectiveness as a planner and his monumental contribution in placing India high up in space research and satellite technology had a lot to do with certain personal characteristics and interpersonal skills than mere technical abilities and theoretical knowledge. He possessed all that makes one a superb leader – warmth, empathy, reliability, a lack of pretentiousness or defensiveness, an alertness to human subtlety and an all important ability to draw people out of their shells. Men like him have set for us, by example and not by precept, the extraordinary standards of performance and we, in our generation have to make an effort to match and excel these. Vikram Sarabhai and Homi Bhabha were the pioneers in placing India on the world map and converting India into an economic power.

This backdrop makes my task as a planner very challenging. Electronics and Communications Technologies have to be harnessed today in our efforts in providing solutions to many of our serious and nagging problems that affect millions in the country. The task is rather uphill since induction of these technologies is going to create profound changes in our life styles. Any change, even for the good of the people, is always inconvenient and therefore hard to introduce. Therefore, the task would be to induct these with care and avoiding the ‘Future Shock’. Alvin Toffler was prompted to write since he was alarmed

by potential hazards of this rapid change and its effect on developed societies in the west. We in our country with our 70% illiterate cohabitate, have therefore to be extraordinarily thoughtful in choosing our course.

Electronics, computers and telecommunications technologies are very pervasive and would touch every aspect of human life. But today I have chosen to restrict myself to its socio-economic application and the opportunity these technologies offer in the form of reliable solutions. This subject was also close to the heart of Dr. Vikram Sarabhai so it is very relevant for me to speak on the subject. Electronics and telecom engineers like us could provide that faster vehicle for closing the gap between our urban and rural communities. It is possible thru' this wonder science to put a stop to migration of the rural poor to faceless, overcrowded and inhuman cities. It is possible to set free knowledge and information from the shackles of written words and allow our million illiterates and semi-illiterates to learn and get informed through powerful audio visual electronics media like television. The task of training thousands of teachers and extending high quality education by taking our best teaching talents to municipal schools and those in distant rural areas is possible by harnessing video technology. Television has today been hijacked for commercial advertising in the US. Television is sometimes called an insidious teacher. Undoubtedly teacher it is, but it being insidious or otherwise depends on our planning of its usage.

Communication is the key to any development, and solutions that electronics offer in the field of communications are absolutely mind boggling. TV offers just a one-way communication. Telephone offers duplex communication and helps conversation and is therefore more human and intimate. Telex and facsimile enable to transfer text, documents and drawings and that too instantly. The cost of communication is rapidly going down. Electronics and Computers have helped in dramatic reduction of costs by optimising the utility of network. Fibre optics is yet another allied technology that would offer a terra firma alternative

to satellites and will help us to communicate with greater speed at even lesser costs. Communication enhances development efficiency. Even the early civilizations have flourished on the banks of the rivers. If we consider the Indus valley civilisation and the Gangetic civilisation or the civilisation on the Euphrates all of them were established where there were rivers. They were the lifelines for communities settled on their banks. Experience has also shown us that once you construct a road or a highway, the communities and villages along its way develop with considerable rapidity. Rural Telecom will one day become a key to its comprehensive development. India is a large nation and telecommunication growth will make it smaller. We like to work through face to face relationship. If you stop a local train in Bombay mid afternoon any day and ask the travelling public, you will find that a large number are travelling just to deliver messages. You are all experts in science and technology. Tell me why do we move a 70 kg mass of a messenger from Kalyan to VT to carry a letter weighing half a gram? We have the technology and capability, both technical and financial, to extend metro telephone network to surrounding rural area within say 50 km radius and make it a local call. One could imagine the consequence of putting such a telephone instrument in villages on the fringe of cities. Very soon it will change everything. City migration will reduce, congestion will ease up and zuggis would reduce.

No one can say technology is a panacea for curing all the ills. The gap between urban and poor citizen is not going to be filled by merely adding a telephone. Small farms are still predominant. People in rural areas are, even today, working from their scattered homes and local communities. Unlike factory workers in cities, fewer people sell their labour. They sell a service or a finished product. Literacy is growing but is yet grossly inadequate. Travel is as yet slow and perilous. Yet the small and closely knit nature of our community today comforts these uneducated masses and offers them strength and a sense of security. But the same smallness is known to become their handicap in case of famine

and other natural disaster. It also affects their training and education. Experience, which to a large extent can make up for illiteracy, is severely limited by their isolation and its results in a progressive degeneration. If thoughtfully planned Electronics, communications and computers would help us to help development.

Television is known to be a great homogeniser. Dr. Sarabhai had recognised it. It has helped multi-racial, multi-lingual heterogeneous nation like the United States of America to groom an independent American culture of its own. How else can you explain why through out the length and breadth of that vast country, everyone would wish you to “have a nice day” after giving service at a gas station or in a shop or a restaurant? Television is a great leveller; it makes people understand that a diversity of cultures exists and they have to be appreciated. A child of three and a great grandpa of 90 are being together education indirectly to understand and respect people from other states and develop a new kind of relationship and kinsmanship.

The second handicap that I see today is a broad inability of different ministries to strengthen them by co-operating with one another in sharing common infrastructure, even when such a sharing would lead to quicker pace of project implementation and substantial saving of the resources. Electronics is an all pervasive subject. Electronics technology extends itself into various fields which demands multi-ministerial co-operation. Inability of concurrent thinking is leading us to indulge in extraordinarily high plan expenditure. More important, it is adding to almost fatal delays, which a dynamic technology like electronics, can ill-afford, without harming the national interest.

The third reason for our continued failure to have a firm grip on this technology is the lack of management structure that would focus on efficiency and cost of doing things; both long term and short term. Our innovativeness today is limited to searching the loopholes and our enterprise extends not beyond financial

manipulations. David McClelland, a psychologist at Harvard who published 'The Achieving Society', made an important point that there is a deep connection between the ways we hope to advance as individuals and the economic resiliency the entire culture displays. He attempts to discover why certain cultures 'worked' better than the others. He says 'some cultures taught that struggle was fruitless, since success or failure ultimately depended on destiny and the Gods'. Sounds familiar, isn't it? He goes on to observe that "others conveyed to their children the view that the odds might be long but they were rarely insuperable. Luck mattered but that prudent man could almost make his own luck". We, in India, have been prompting former kind of values. Our country is a fatalistic society driven by a belief in God. But shorn of intellectualism, our entrepreneurs run business on sheer instinct. Surprising, the less privileged in our country often seem to take challenges with greater ease than merited ones who turn professionals, get into cushy jobs and forget about risk or enterprise or migrate to serve foreign masters.

Our next inadequacy is technical education. There are 150 Electronics engineering degree colleges and 300 diploma giving polytechnics. Almost all these institutions are poorly staffed and poorly equipped. The College of Engineering in Pune, from where I graduated over thirty years ago, is today a model of a state to which our institutions have been reduced to. In the last 10 years this department never had even 50% of the strength of the sanctioned strength of faculty. IIT students perform well broadly because the quality of students joining them. But IITs should be doing a lot in technology development. They should operate integrated research institutions and contribute engineering innovations. To me, as a creative technician, it appears shameful that there is not a single industrial product in the world today which could be proudly claimed as of Indian design.

With all this inadequacies no one can deny that we have capable, competent and creative people in plenty. We have able, authentic and action driven engineers to depend on and we have scientists

of the highest calibre and technologists with in depth knowledge and experience. Those who work here have to struggle to get opportunities. We must do something about it soon. For them to germinate and develop we need to create an environment that blossoms creativity and which offers challenges.

We have to stop building institutions without first finding a leader as a nucleus for them. We must build institutions around individuals. Like Jawaharlalji did in case of Dr. Homi Bhabha and Mrs. Indira Gandhi did in case of Dr. Vikram Sarabhai. The two scientific programs which brought India into the limelight are Atomic Energy and space research. Neither would have succeeded without the missionary zeal of these two visionaries and extraordinary freedom given to them by the Government. It is only that spirit of nation building that can see us through. Any nation is as creative an achiever as its people are. Dr. Sarabhai has left us an example to follow.

Finally we are all engineers with a vast experience and many achievements, There are also engineering students in this gathering. Our role is that of a change agent. We need to keep learning since our art and science is changing fast. If we don't train ourselves, we shall be responsible for not helping this nation to enter the 21st century with our chins up. We can't blame Rajiv Gandhi and get away with it. Future generations will never pardon us.

1989

(The PM Rajiv Gandhi had a Tele-Conference via Satellite with the German Chancellor as part of the Inauguration Ceremony of CeBiT 89 held in Hanover, Germany in April 1989. It was witnessed by a large international audience. India was the first country chosen as a Partner Country at this world famous Information Technology Exhibition that attracts almost half a million visitors. The author led the Indian Team of over 65 participating Indian Software Companies. This is an informal note sent to the Prime Minister by the author, as a brief, a week prior to the country's first ever trans-national teleconference.)

CeBiT 89 BRIEF FOR RAJIV

HISTORY OF COMPUTER TECHNOLOGY IN INDIA: UNTIL 1982:

Computer technology came to India with the installation of IBM1620 in Guindy Engineering College in 1960. From then, till the mid 70s, computers were deployed for education and research in the Institute of Science and NAL in Bangalore, TIFR, in Bombay etc. Indian business or industry had shown little interest in using them.

From early 70s until 1981, IBM and ICL from Pune were the largest providers of mini computers in the country. The Operating Systems came bundled together. Mostly PSUs, Defense Labs and other R & D organizations were the users. Some of these had large EDP teams to write customized application software. Digital Computer India Limited sold a large number of MicroVAX systems during this period. As you know, ECIL Hyderabad also played a significant role, albeit under DoE's protection. (Indian Airlines Reservation mess).

Tata Consultancy Services –TCS- in the private sector was almost only a private effort. TCS made a significant advent when they got what could be the first major software export breakthrough on 1973 for Inventory Control software product for Iran Power

Company and later they did another contract for Burroughs Corp. UK for a hospital management system.

Software got some boost when SEEPZ became operational. Again, the two Tata Enterprises gave the lead. Tata Burroughs Ltd and TCS along with a few others helped us develop growing exports, having got freed, to a large extent, from the DoE and DGTD in the Duty Free Zone.

The presence of a large number of UNIX based systems in the country has helped us in one way in creating manpower with specialized software skills. We have got a reputation as a UNIX country. RBI's decision to use UNIX based minis for bank automation in 1986 has strengthened this further. (We need to urgently do something to push banks to speed up the Branch Automation Program. I sent you a press cutting of a speech by Shri Bagaram Tulpule, a reputed Labour Leader of the bank employee's union. I think imagined threat of labour unrest is being used to cover up the fear of computers by top managements of banks. 50+ bosses are more worried than the employees.)

SOFTWARE EXPORT DATA

1979-80US\$4.2 Million
 1980-81US\$6.6 Million
 1981-82US\$13.5 Million

POST 1982 HISTORY:

You are personally aware of developments during this period but let me recapitulate for a quick reference.

1. August 1983 Import Policy with your initiative gave the first major push to Electronics Industry in general and computer Industry in particular. Rationalization of tariff and lowering of import duties gave a fresh thrust to this sector and the results are well known.
2. You will agree that support to Dr. Sheshgiri Rao in DoE early on has paid us a dividend. (Our plans for the DoE and

relevance of NIC as discussed in May 1984 along with Sanjivi Rao in Indiraji's office.) Computers, for the first time, were given special attention in 1984, thanks to you. The Computer Policy announced in November 1984 that gave recognition of software development as an Industry and the decision to reduce import duty from 100% to 60% made it easier to import micro computers. Not enough but this indeed helped us grow software exports, since this also made it easier to give on-site software service. This also led to the increase of production of computers in the country by over 100%.

3. After you formed the Government in 1985 and took over as the Prime Minister, we have been able to bring about a change in thinking. You were rightfully recognized as the prime mover. You know how in 1986, a fresh initiative was taken to free the Computer Industry from the clutches of bureaucracy in general and DGTD and DoE in particular. The Computer Software Development and Training Policy of 1986 has proved to be a great boost. NIC has played a lead role in this too. It enables unrestricted import of software in any form, easy import of software tools, permitting foreign investment and the promise of creating venture Capital is doing wonders. You should not forget to stress this in your address.
4. The next important event started with clearing Texas Instrument's application to set up a software development centre with a direct satellite link to the US in 1985. In spite of objections from the Revenue Department this was achieved and it has become an important reason to grow software export from the country. We need to attract many more to shift software activity to India. CeBiT89 is therefore a great opportunity to showcase our strength. I have been able to get over 55 Software Companies so far to be in the India Pavilion. TCS and a few others have their own presence. "Intelsat 359" has helped VSNL to have a direct

single hop 64-kbps satellite link to the US. This new gateway links us to AT&T's Earth Station at Coram on the East Coast of the USA.

5. National Informatics Centre (NIC) under Dr. Sheshgiri Rao is another achievement you can talk about. A national data Base for Government Information is unquestionably an important event. We have need for information for planning and plan progress. That is why I told you that we put NIC under the Planning Commission. I know people are unhappy (especially Dr. Sheshgiri) but we need to do it. District Collectors are not getting what they need. We need NIC to be used for the purpose it is created. It can be used more effectively to create and develop DBMS that planners and administrators need. This however is good work and credit goes to the personal initiatives of Dr. Sheshgiri.
6. DoE has invested in creating four Software Technology Parks in Bangalore, Pune, Hyderabad and Bhubaneswar. It is a good and essential concept but poorly sold. Software Development activity and export needs relatively minor infrastructural support. They need a UPS with a back-up diesel generator to ensure clean break-less line power and a satellite high speed ground link either wireless or via fiber-optic cable. Even this is not happening since DoT and VSNL can't agree on their respective roles. Software Parks are essential and even private investment is possible. We already have one NRI keen to set up such a private part but bureaucrats are making him run pillar to post. CeBiT 89 would be a good platform for you to talk about this aspect.

SOFTWARE EXPORT PERFORMANCE DATA – 1980-81 TO 1988-89

Year	Export Value US\$ Million	% Increase
1980-81	4.0	
1981-82	6.8	70%
1982-83	13.5	99%
1983-84	18.2	35%
1984-85	25.3	39%
1985-86	27.7	9%
1986-87	38.9	40%
1987-88	54.1	38%
1988/89 (Apr-Mar)	69.7	(29%)
1989/90 (estimated)	110	55%

FUTURE:

I think after a long time the country has been able to put its finger on the right pulse. We have a right product to sell to the developed world; the right kind of Manpower for Software Development. Our strengths are unmatched; we speak and work in English, we have a sharp focus on arithmetic in our early education with metal sums and memorized ‘tables’, there is a large pool of under-employed white collar graduates available at tenth the cost of comparable help in the western world and a service that can ride on Satellite links to any server in the world. Our NRI “Brain Drain” has given the computer industry in the developed world a taste of Indian skills and they know which side the butter is. No doubt, this is *shagirdi*, but we shall be playing ‘third fiddle’ not too long. One day, in not too a distant future, we will have our own orchestra. This is our break. You have given the right lead so far. A lot more could have been done but what you have done so far is important. You have given hope with your focus on modernity and the 21st Century. In our next term, I am sure, the

whole idea will mature. Some more tough decisions are necessary and you, I am sure, will take them. For now; representatives of the global computer Industry waiting to hear you at CeBiT 89 and it needs your magic to draw them closer. I am taking more than 60 software firms from India to India Pavilion at the show.

3rd April, 1989

1989

(The author was asked by the Prime Minister Shri Rajiv Gandhi in early 1986 to take over as the Chairman of the Electronics Commission. The Chairmanship of the Commission was an honour and a responsibility. He however was not told that the role of the Electronics Commission was, in the meantime, redefined by bureaucrats. Earlier the Commission had the powers of the Government but its redefined role was changed from authority to advisory. He stayed on for a couple of years to finally recommend the P.M. to wind it up.)

QUO VADIS: DELHI BLUES

In early 1985, I became an employee of the Govt. of India and later also took over the responsibility of chairmanship of the Electronics Commission. I was not sure, and said so even to Rajiv, whether an impatient autocratic person like me would be successful in a position that demanded patience and tolerance. He desired that I should, so it was. The skill to deal with gigantic Govt. machinery, that moves mountains with a mere piece of paper, needs a person with different kind of grit and attributes. Serving a government in Delhi and that too as a planner, needs a close knowledge of the system and an ability to move through its bureaucratic maze. Moving through the corridors of power is not easy. I could not forget the sad death on the train to Mumbai of Prof. D.R. Gadgil, almost the day after he relinquished his job as Deputy Chairman of the Planning Commission. Disillusioned he was, I am told, when he left and unhappy that he could contribute so little. The worst plight for a committed professional and a distinguished economist like him comes when no one wants to draw upon your resources and skills as a knowledgeable planner. So for me, there was a lesson to be learnt that Delhi was not waiting for me, to learn from me or benefit from my ideas. In December 1982, it was a different situation. The Asian Games had ended without problem and Indiraji was somewhat relaxed. I could get to her ears in Rajiv's living room in the PM House and convince her of the benefits of changing the existing approach to

industrial development by controlling it through bureaucracy. I could convince her of benefits of de-licensing the electronics Sector. This was the time when even China was opening its doors to the world. She was a doer and once convinced, she herself pushed those ideas through the Government. Rajiv was different and in a sense, still groping in the dark through uncertain times and unexpected developments were surrounding him. He believed that bureaucrats acted on his instructions. Of course, these bright guys indeed did, but not as he meant or in the implied spirit.

THE FIRST GLIMPSE OF BUREAUCRATIC CUNNING

The Electronics Commission was re-organised just a few months before I took over. In fact bureaucrats had with one stroke of the pen changed the Commission's role advisory from regulatory. They took away the electronics Commission's powers to govern and direct. The original Cabinet Resolution of February 1971, that brought the Electronics Commission into existence, was fully superseded by another resolution in mid 1986, spelling out a new and a different kind of role for the Commission. The 1971 Resolution had said that the Govt. of India considers it necessary to set up the Electronics Commission in order that it would be "free from all non-essential restrictions or needlessly inelastic rules". It had specified that within the limits of budget provision approved by the Parliament, the Commission would have powers of the Govt. of India, both administrative and financial for carrying out its work.

All this was withdrawn with a clean sweep by this second resolution just before I took over. It took away the commission's authority to direct the administration. Interestingly they never sent this resolution to me till I asked for it. To enable the commission to function effectively and help implement its cabinet approved plans, it needed the powers of the Government. That was curtailed. The new Electronics Commission could not direct, it could just recommend. Earlier the Chairman of the Electronics Commission had the rank of a Principal Secretary to the

Government. He had those powers. Now they elevated the position and I was given a higher rank as a Minister of State. That indeed was a very clever move. The Minister of State rank would have pleased a politician but for me those powers were more vital than the title. It gave me the first test of bureaucratic cunning ways to neutralise someone.

COMMISSION'S TASK

The speed of implementation and the overall effectiveness of electronic policies could get severely hampered in absence of inter-ministerial co-operation and co-ordination. As far as Electronics is concerned that has always been the Commission's task. We have not been able to make headway in this direction during my time primarily because there is no clear stipulation that the policy proposals relating to electronics initiated by various ministries should be routed through or cleared by the Commission. Also in course of time, I realized that the Commission could prescribe broad functional parameters within which the individual ministries and departments could act but they could also act without consulting the Commission.

As a result, even the Commission had to get information on Government policies relating to electronics sometimes by reading about them in newspaper reports after the policy pronouncements by the Secretaries and the additional secretaries of various ministries at their press conferences. Strangely that included Electronics & Science & Technology Ministries also. So, ironically I come to know from newspapers about the happenings for which I am supposed to be responsible for!. Further, Commission couldn't easily change an already declared policy by a ministry in order to ensure proper co-ordination amongst various ministries.

Electronics Commission, understandably, was then a low priority with the political climate heating up with Vishwanath Pratap Singh's anti-Rajiv revolt. Rajiv was in a deeper maze and there

was no point in bothering him or adding further to his overburdened self. Anything urgent normally relates to a short term policy and MOS Electronics aided by his Secretary were handling it, mostly competently. Mr. K.R. Narayanan as the MOS would consult me on all important technical matters. He was very co-operative as well as competent administrator. The policy framework, being a long term exercise, never appears urgent and therefore is easier to be pushed out of one's mind. In fact, I had a feeling that the Govt. couldn't clearly outline how the Electronics Commission will fit in the Governmental matrix and what to do with me. I had almost become like a third hand which they do not know where to keep.

ON CHOICE OF COLLEAGUES

The first draft of the national objectives for a new policy was ready in a few weeks time and, I thought, the Commission should adopt it after deliberating before we proceed to frame the policy framework. Views of five non-official members were important since the other five were the secretaries of the concerned ministries. Unfortunately, I was told that non-official members of the commission had finished their term just before I took over. For a full period of 9 months, Govt. had not appointed the new think-tank, nor did anyone send me, as the Commission's chairman, the file pertaining to their appointment either for my views or recommendation. For the first several months the Commission members were secretaries of the five related ministries. We had been meeting independently and formally getting together during the meetings of committee of Secretaries organised by the Cabinet Secretary. Mr. B.G. Deshmukh, the then Cabinet Secretary, was careful to invite me to attend these CoS meetings if the matter concerned was in my domain. While I corresponded with these secretaries on matters of my concern, I saw no point in collecting them together for a formal Commission Meeting. No point in wasting some more of their time by calling a meeting.

PROFESSOR OR DOCTOR?

The chairman of the Electronics Commission is considered as an important position. It, in any case, appears an imposing title with its protocol rank as the MoS. The person in such a position needs to be imbued with cultivated education which gives one a surface gentility and elegance that commands respect. Preferably, I sense, people want such a person to have a beard with flowing white hair reflecting wisdom and cultural superiority. Sam Pitroda fitted that description rather aptly and so did Prof. M.G.K. Menon. Sam was American in action and Indian in passion with a gift of gab that matched his personality. To some people, therefore, an engineer like me in this position, without the lock of whiskers, almost become an embarrassment. This sentiment was often reflected when I attended public functions. Most of the speakers felt tongue-tied while calling me a mere mister. Some often promoted me into the world of academicians and referred to me a professor and some others, by a private convocation, award me a doctorate and address me as Dr. Deodhar. One of the Universities even engraved my name as Dr. P.S. Deodhar on a foundation stone. I have seen many a doctor and professor closely enough to privately justify to myself that I need not correct them & thereby, add to their embarrassment. It was a matter of luck that I had become entitled to a more rewarding status as a successful technical entrepreneur. Indeed, it was equally possible that I would be a professor somewhere and wearing a doctorate from some foreign university like some of my classmates if I had not chosen to be an entrepreneur.

MY PERCEPTIONS FOR PLANNING

The first action taken by me after I assumed charge was to identify for the country objectives and priorities to harness electronics for rapid overall growth with improved efficiency. In fact, my perception of electronics policy does not relate to framing of rules and regulations for import-export or licensing or granting permissions. It involves creation of environment & infrastructure

that will help the country to achieve increased domestic and export business, to position it better in technology development, to support innovation, to reward enterprise, to benefit the consumers, to improve communication, to make the rural poor information-rich and to help illiterates to have an access to knowledge and wisdom etc. It involves keeping a careful watch on new global technologies and get them evaluated. It involves creating foundation for a strong industry, for stimulating generation of more resources, for preventing exploitation of the citizen by domestic or foreign industrial and commercial enterprises. Challenge is to achieve all this without creating a plethora of rules and regulations that would otherwise further strengthen the hands of controllers and authorities. Our problem, as Rajiv had often voiced, was how to promote and not regulate, how to stimulate and not canalise and how to protect the weak and the honest without unnecessary control resting in the hands of the so called administrators. Thus such a policy-making exercise would have needed an intimate knowledge of what is happening – not in Delhi, because often what one sees there is phoney & theatrical; but in the field where the action is or where the shoe pinches. This needed information, reliable information. to be available readily with me & my colleagues on the commission.

An orthodox planner may find it helpful to work with a macro vision. To me, however, there is no use for merely the bird's eye-view of those beaten tracks of the past & its results. There were any number of people writing about Indian electronics by taking a macro view or talking on the basis of generalised perceptions and half truths. What was important for me, as an engineer handling nuts & bolts of this industry for 30 years, was to take a "worm's eye-view" as Mr. Kikuchi of Sony says in his book 'Japanese Electronics'. He says "A Worm can only talk about the grass through which he crawls. But for all that, his tales are based on real experience; they are the stuff of flesh & blood".

I am aware, that one man's experience of the small world around him does not always reveal the real essence of a problem. One

doesn't want to miss the woods looking at a tree or not judge an elephant by touching his trunk or a tail. In any case, knowing ground realities is a good starting point. Durable progress needs thoughtful planning. Regretfully, within the Governments of today, we end up in fire fighting and dealing with problems just in their line of sight.

FUTURE FOR POLICY MAKING

We needed to deviate from a then ruling pattern and structure a fresh Electronics Policy by setting objectives to use this technology for comprehensive benefits to the nation. It was important to ensure that industry grows more rapidly but the growth should be healthy and based on rapidly increasing our global market share.

Electronics, computers and communication technologies are converging and policies should lead to benefiting from this convergence. Wider application of computers in business, industry and the government will lead to quick improvement in productivity and efficiency.

What was visible then in the DoE as a Policy was a compendium of procedures for regulation and control of industry; whether to permit something, how many licenses to be issued, where could plants and projects be located, what should be the duty structure, whether to ban a component or allow its import without license and such other series of decisions constituted the Govt. policy on Electronics. For effective and desired growth of electronics, our policy had to be based on well thought out social and political objectives besides consideration of industrial and commercial growth rate and its nature. The questions before were; what are our objectives today in specific terms? Is there any specific pattern of growth envisaged to meet certain goals and targets? Unfortunately, these questions had no answers within the ministry. When the so called policy decisions are taken on an adhoc basis, not only such decisions tend to be arbitrary but they also consume limitless time. In the dynamic field of electronics, delay

in decision-making has its own repercussions. Even today, we can see the ill-effects of delayed decisions and of our procrastination.

Successive Governments in India use administrators to make policies. It should ideally be the privilege of the party in power to make policies and to direct administrative machinery to implement them. That is what, in fact, happens in a mature political system. Political parties in India including the Congress have rarely used their own think tanks at least in recent past and empowered them to write policies to suit their political ideology.

STATUS OF ELECTRONICS INDUSTRY IN INDIA

In my personal opinion, what was anticipated in the 1983 policy had not been followed with appropriate measures as charted then. Progressive reduction in tariffs had not happened as envisaged. Import of technology had not been adequately liberalised. Establishing a new venture in India had remained a complex process and took a long and unpredictable time. Industry still sought protection from imports. There was no long term committed policy that my 1983 Policy Recommendation to the then Prime Minister envisaged.

However I still saw three positive effects of the 1983 policy. One – the usage of electronics in the country had increased, especially in the consumer sector, two – investments in electronics had increased and three – import had brought in modern manufacturing plants and enabled people to get good quality foreign products through SKD or CKD import which they could buy in Indian currency.

Unfortunately, associated with this increased size of industry with high growth rate, several negative aspects were noticed.

1. Distance between the global business and that in India has remained the same. We were still below one per cent of global output. In fact this figure had declined over the years.

2. The hardware export growth was miniscule. The value of electronics exports even from city states like Hong Kong or Singapore were three times those from a continent-sized India. Infrastructure, even in free trade zones, was poor. The turnaround time in ports was still long and arduous. Software Parks were taking too long and are not globally promoted. Foreign investors were still shying away from India because of bureaucratic hurdles. We continued with our 'big talk, little action' approach. In the name of technology import, only manufacturing plants got imported and no real technology was seen being transferred.
3. Development of real indigenous technology had come almost to a grinding halt. Commercial and psychological rejection of domestic technology through populist perception was already a strong handicap. But unwittingly, the Government itself added fuel to the fire and put several administrative blocks in the way of stimulating indigenous R&D efforts. Electronics Commission did suggest corrective measures to the Industry Ministry but there was not even a formal acknowledgement by the Government of these recommendations.
4. Internationally, our policy of import liberalisation was very well received but no foreign company had made any direct investment in India and set up units here stimulating employment and local value addition.
5. The Taiwanese had started investing in the People's Republic of China and technology was flowing in there from Hong Kong and Taiwan. China was liberalising import in a pre-planned organised fashion and using that for attracting foreign investments. Overseas Chinese were investing to make use of low cost Chinese labour. We just waited and watched. The mindset of Taiwanese and the Chinese is the same and the productivity of these people is higher than ours due to discipline and a sort of regimentation. I feared

then that China would soon become a mega-Taiwan. My note to the PMO on my concern remained unanswered for three long months. Fire fighting leaves no room for seeing what is brewing across the Himalayas.

6. The computer and semiconductor Industries offer us global opportunities, especially in software writing. Texas Instrument's software development for semi-conductor design was by then well established. Others in US were watching it. We needed to put thrust in that area. Use of computers in the country had to grow much wider and deeper. India was producing or assembling just 30,000 PC-XTs a year. The market was limited because of high prices. Estimated demand by us was almost half a million if the prices were brought below Rs.10, 000/-. I spoke to industries like Wipro and HCL to take a plunge and produce big volumes to bring down prices. Neither responded enthusiastically. I then decided to one day use ET&T to get into PC XT business in a similar format like the MTB Plan for televisions. Unless computers are freely available at affordable prices we cannot achieve leap frog progress to enter the 21st century as a modern nation. A ten thousand rupee PC XT was not just a dream, ET&T finally made it a reality. I spoke to Rajiv for almost two hours. He was feeling let down by his political colleagues but he was positive about my computer initiative.
7. Liberalisation of imports of products and technology as well as getting rid of industrial licensing has its impact. Consequently there will be more employment while people at large will benefit with availability of better products that use current technologies.

In conclusion, we succeeded in speeding up and maintaining our growth rate well above 35% even since the announcement of the 1983 policy. This created a large Indian industry but it still sought being protected perpetually. The reason is poor investment in a

component industry and slow growth in exports. Thus our large industry still continued to be weak and distinctly different from the industry abroad.

15 AB Mathura Road, New Delhi

1999

(During the last fifteen years hundreds of million PCs, disc drives, printers, keyboards, monitors, modems, attachments, IT Gizmos like palmtops, floppies and huge quantity of software products have been consigned to dustbins and junkyards. World community has wasted almost a trillion dollars of its hard earned money as the price of IT obsolescence. Author has pointed out precisely how the IT industry uses the current marketing tool of “Fear Lure and Urge” to make non-essentials into essentials and use obsolescence to its advantage.)

IT ‘FLU’ IS EXPENSIVE

Information Technology grows on Fear, Lure and Urge for modernity in the community but it is proving both; Expensive and Wasteful

Unlike the white goods like refrigerators and washing machines or home entertainment products like televisions or music systems, short life of IT products like PCs and other gizmos has proved to be expensive and indeed wasteful. A study will reveal that IT industry has given poor returns to people in terms of value for money. Return on investments in IT has been poor. It has proved to be an awfully expensive deal for the people at large. According to a recent study, typical half-life of IT hardware and software product during the last decade is found to be less than 11 to 14 months whereas for other home improvement products it is over 6 to 8 years. In India, where people earn rupees and have to spend them in equivalent dollars for the IT stuff, people have lost the most. Why then people have been repeatedly spending money to buy the latest and discard what they bought just a year or two back? What mesmerised the world community?

In the rapidly evolving world of technological changes the IT business community has skillfully used media as a tool to influence people at large about the way technology will increasingly affect their lives. In fact IT has turned that tool sharper, enabling it to invade deeper into our private lives. By now, the fear of being

left behind has been well imbibed in the minds of common people. This often-unreal image of Information Technology and its influence on the life of tomorrow has caused a deep and unwarranted concern and palpable tension in the world. If one studies the extent to which the common man's daily life has changed due to advancements in IT, it is clear that IT is over sold making it look like a panacea for quick enhancement of personal efficiency, productivity and social comfort. Of course the Information Technology has its great merit but the facts have been deliberately blown entirely out of proportion by the global IT community. Their purpose is indeed well served. Market for IT products is today outpacing even that for life's essentials.

During the last two decades IT vendors have skillfully transferred trillions of dollars from our pockets into their coffers. Every IT product is getting smaller, cheaper, smarter, faster and portable. In the process, however, a huge amount of money has gone into dumps since many a time the older but still gainfully usable products are made incompatible and difficult to upgrade to the next version leaving the user no option but to discard such obsolete devices. Unlike other white goods like refrigerators and washing machines, the speed with which IT products reach obsolescence results in incredibly poor returns to people in terms of value for money. It has proven to be an awfully expensive deal for people at large. According to a recent study, the typical half-life of IT hardware and software products that entered the market during the last decade is found to be just 11 to 14 months and 15 to 18 months respectively. For other home improvement products it is over 6 to 8 years. Prices of technology products all over the world are similar but in India, it has pinched our people harder because people earn in rupees but have to spend them in expensive equivalent dollars. Why then, have people been repeatedly spending more money to buy the latest and discard what they bought just a year or two ago?

This is where IT vendors win by using media to spread IT "FLU". Media hype is being cleverly used to induce a compelling urge in

the mind of the people to be in step with the advancing era that leads to an inner obsession for the so-called modernization. Add to that lure, the fear of being left out. So everyone ends up with IT FLU – *Fear and Lure led Urgency*. This FLU induces the buyers to go for many new gadgets that prove to be useless to them in a short period of time. The latest PCs, laptops, palmtops or even cell phones are not just products; they're the symbols of one's modernity! If you don't have a cell phone, people can't reach you and you stand out! Then if you have the cell phone, again you are outdated if you do not possess the newest version. People are made to feel like they're missing out on something. IT FLU makes everyone wanting to be a part of this new revolution.

The IT Industry has effectively spread IT FLU to sell their latest high-tech toys. The magic of IT and many of its impressive attributes has made it easy to mislead the novices. A study at the University of Reading has revealed that in a majority of cases, buyers had bought what they either didn't need or didn't know how to use. The fear of being left behind is a strong motivator. With the media relentlessly fuelling IT myths, FLU is today a great driving force for more and more unnecessary new purchases. Consider, for instance, the parents who buy at high prices the latest and the fastest computer for their growing child. The studies show that in 85.3% of the cases the family finally uses it just to surf the web, play games or send and receive e-mails.

In simple words it is like IT salesmen convincing a blind person to go for a night lamp for his bedroom. A sword is of no special use to a vegetable vendor; a sharp knife is just enough. FLU helps to blunt buyer's wisdom. A survey of the use of Personal Computers in private homes is very revealing indeed. In any social conversation, people proudly talk of their PC that has a P4 processor with 2.5GHz speed. Rarely however, they talk about a new exciting software package or of an innovative way it is being used. In a majority of cases, the pattern is the same. Almost always, the web surfing of the kids is limited to frivolous chats or downloading music. They find the privacy offered by a PC by the

way of password protection very handy in keeping their Dads and Moms away from scooping into their private world. A recent US study finds that this private world relates to cyber sex in almost 81% of the cases.

In urban India it could be even worse with traditional orthodoxy still prevalent in many rich families. Poor grand dads, mortally afraid of computers, never go beyond playing chess or card games. For all such chores one doesn't have to scrap the old PII Pentium PC and go for the latest. These days carrying laptop is the in thing. Thinking of other popular uses of the home PC, young India has just begun to use much talked about applications like e-Banking. However e-shopping is still a distant dream. More importantly, before that happens; the IT Industry will be making sure that the current 2.5GHz P4 Laptop is obsolete twice over!

High profile marketing is shaping our lifestyle. Formerly companies produced products to fulfill a market demand, now companies artificially generate a demand for the things they want people to buy. Articles earlier considered as luxuries have been now turned into necessities. Pavlov is being reinvented for mass brainwashing. As a result most of the people who can't even program a VCR are buying a Palm Pilot! Needless to say they never use it. There was a study of people who bought Sharp Wizard Electronic Organizer as a Personal Efficiency Tool. They found that 98.5% could never really use it or organize their life any better. Everyone knows of friends who have bought a cell phone but rarely carry them, or forget their numbers or have no idea how to set up their voice-mail. People buy Palm Pilots or handheld computers just to plan what a plain Paper Planner would do. Most of these new high-tech gizmos are also far from user friendly. Each one comes with different newer but unfamiliar controls and features. The customer support is rare if at all available. Product concepts are often great but its practical manifestation is a disaster!

Fear, Lure and Urgency – FLU – is a deadly marketing tool used today that clouds our judgment and stops us from thinking

rationally. This marketing philosophy has currently succeeded in turning non-essentials into essentials. That is the reasons how the present marketing techniques make our kids feel barefoot without a Nike sneaker or naked without a branded pair of Jeans. Poor chaps are brainwashed into feeling thirsty without a coke and hungry without a Big Mac. It is a pity that not only people with limited imagination but also those with limited resources are being tricked into spending on non-essentials and on things that would eventually hurt them more than help. Gradually, technology is transforming humans into mice that just click away and open the updated menus of new goodies!

2001

(During mid-nineties the Government of India was lured by the IT Industry associations like NASSCOM to give indirect subsidies by way of Income Tax and Duty Exemptions. This highly profitable business of providing low cost manpower at high prices to foreign Software giants actually deserved no such concession. This business would have grown equally well even without these props. In the process country lost a major source of revenue of 50,000 crores during the last decade that could have been gainfully used to invest in much needed infrastructure development. This in turn would have made our manufacturing sector export friendly. China took away that business and created job opportunities for eighty million blue collared semi-skilled Chinese during that period. This article, published in 'Outlook' Weekly magazine in 2001 still has the same relevance after 4 years)

PAMPERING OUR SOFTWARE HAVAMAHALS

The Government of India's love affair with the software industry is costing the country dearly. Even after five years, most of these companies have remained mere body shoppers. No Intellectual Property of any significance has been created, nor is there any major Software Product of Indian origin. The software industry in India is essentially a labour-contracting industry. Therefore there is no logical explanation why such a highly profitable and market driven industry should get so heavily subsidised and pampered when it contributes absolutely nothing towards the fiscal deficit. The entire subsidy goes to augment the wealth of the wealthy software houses. This industry is demand driven and has been growing effortlessly through private initiative. Except for scrapping irrelevant laws and reducing communication tariffs to international levels, the government has no need to specifically waste its time and resources for this sector. If it merely adds to its own efficiency through meaningful use of IT, it would help the industry by creating a large domestic market.

The software industry's subsidisation is a classic case of the

government enriching rich Peter, by robbing poor Paul of his subsidy. Not being satisfied with the 100% exemption from the income tax under 80 HHE, the Central Government has also given these body shoppers, Special Import Licenses at 15% of the FOB value of their 'export'. Besides this, they enjoy drastic reduction in import duties as the government readily gave in to the WTO's pressure and agreed to ultimately drop them to zero. Various glamour-struck State Governments have also joined in by announcing the sales tax and several other concessions. As if all this was not enough, the PMO itself found it necessary to appoint not one but four high level committees to find what more can be done for this most favoured sector of the Indian economy! What a focussed attention! IT dream merchants have indeed sold the 'Super Power' dream very well.

Classically, government subsidies, if dispensed at all to industries, have to go to those industrial sectors that are today in a desperate condition, especially those in the rural and the small-scale sectors. A lot of jobs are being lost and a helping hand would help many to get over the hump and in the process save these jobs. Even if the IT export income was taxed at 15%; the government could have earned much needed revenue of over Rs.1600 to 1800 crores! The Income tax rate at 15% is still the lowest in the world and therefore would not have been a disincentive to operate from India. Recovery of tax would also help regulatory aspects and more importantly reliable data capture on the complexion of export areas in technological terms.

Most of the software companies in India, even the larger ones, are in reality *Havamahals*. None of them are even a shadow of the global software giants like Oracle or Microsoft. They are right now on the lowest rung of the value chain. They have no brand equity; no product and no stand-alone solution. These companies also do not have protected Intellectual Property that they could claim as their own. All the 'Knowledge Capital' of these companies is in the brainpower and accumulated knowledge and experience of their employees. They are earning well, getting excellent returns

on the manpower deployed, creating phenomenal monetary wealth and highly paid jobs for a large number of youngsters. Despite all these encouraging and desirable features, as corporates they are merely subcontractors, service providers carrying out white-collar labour intensive jobs. They are almost like the companies of the mid-sixties, supplying menial labour to the Middle Eastern countries. The Knowledge worker concept is hogwash, merely a glorified representation of the inherent intellectual capacity of most Indians. Their primary asset remains very volatile in spite of the lure of employee stock options etc. Overnight key employees could walk away not only with their programmed brains but also with the clients. That's why there is this great proliferation of new start-ups. That's why they could be called *Havamahals* – corporations with attractive faces but no bodies. They are just great facades. These rich companies are without any firm foundation, without any core strength or real business asset of their own besides the current contracts and the accumulated profits.

These cash cows have now become the darlings of the bulls on the stock markets! IT stocks are going through the roof. Analysts have been fuelling this situation by valuing companies merely on the basis of their potential, not their intrinsic strengths and their ability to survive bad times. This is in line with the emerging lifestyle where one lives for the day with no thought for the future. Even the governments, with their uncertain future, seem to merely drift with the times and struggle to deal with daily crises.

The global IT industry, in the meantime, continues to mesmerise the world, aided by modern technologies, delivering or promising to deliver awe inspiring intelligent products and ideas. It is selling dreams and cashing in on that sentiment. We are lured to spend, to buy products that promise but do not always deliver and also products that become obsolete by the time we acquire them. Societies and governments are finding it difficult to assimilate these changes and deal with the consequential problems. This situation is ideal for the bulls in the market and they seem to encash well on these sentiments. It is helping new IT start-ups to mop up

funds merely on the basis of a promise. One needs no product. Just an idea is enough. Strangely, finance has become the core rather than the technology or the product. That explains non-banking financial institutions joining the gold rush wearing software masks. Overnight these companies are becoming software developers and exporters! No one is there to monitor the situation. Not only the investor but the government too is intoxicated with the lethal potion delivered through IT dreams. No watchdogs are conscious. This is dangerous, to say the least.

The Government shouldn't forget that it has to garner resources out of the wealth being created in the country and not depend on borrowing from the people or lending institutions from the world. It has social obligations to subsidise the weak and the under-privileged by mopping resources from the wealth creating institutions. Strangely, instead it is subsidising the rich, making the rich richer! As Marie Antoinette once said, "Let the poor eat cake". The digital divide has increased the gap between the haves and the have nots. Is it sensible for the country to count and pride itself on the number of new paper billionaires created or work towards giving a bearable life to her billion poor?

1st February, 2000

2002

When IT illiterate educationalists get glamour struck by computers, they believe that they can help India to be the IT Super Power by teaching micro-electronics to our toddlers. They do not understand difference between a computer professional and a computer user. Just as one need not know automobile engineering to drive a car, computer user need not know what is a RAM or PROM or what is inside a CPU box. One more mindless burden for our school kids imposed by ignorant adults!

HAY 'RAM'!

“RAM, ROM, PROM, EPROM, EEPROM, SRAM, DRAM, CDROM!” I heard my granddaughter chanting. “What are you singing baby?” I asked the nine year old. “It’s her computer homework” the grandma replied instead. I was shocked. The little one had to learn these acronyms by rote and know their full form. I wondered who wrote that fourth grade courseware and what kind of mindset had planned to pour this unnecessary stuff in the minds of these children who are already over-burdened with all sorts of information. Philosopher Plato, in his ‘Republic’ has emphatically underscored that education is not about inserting information into human memory but directing the innate powers of a learner’s vision towards the light. Our 21st Century educationalists and syllabus writers do not seem to think much of the wisdom of Plato.

As an IT professional and a former planner for Information Technology, I must state firmly that I see no wisdom or logic in ‘teaching’ computers in this absurd way to our kids. The widespread glamour of Information Technology on one hand, and the fear and the ignorance associated with it on the other, is responsible for this misplaced enthusiasm.

There is no doubt that everyone in the world of tomorrow will have to use computers in one’s life to optimize the speed, efficiency and comfort in one’s professional work. But it is equally

true that using computers in one's profession, one does not need to know the computer hardware inside their PC box or the embedded software that makes it work. Using a PC or a Laptop does not need one to learn all that. Consider this. Many of these kids would be driving an automobile when they grow up to be adults. Do we however teach them today what is under the car bonnet or the technology of Internal Combustion Engines or the lubricant hydraulics used in an automobile? Within a week of holding the steering wheel, and some practice, one gets a license. Learning to effectively use a PC takes none longer. Let us also understand that using a PC does not need one to formally learn IT. Many of us have started using computers midway in our professional lives and we are deriving full benefits of PC and its ever-growing speed and ever-widening access. Most of us did all this without any formal learning. Further the technology itself is progressively getting more and more jargon-free and user friendly. So why are we showing this stupid anxiety and haste? We do not have to study Information Technology or acquire any special skill to benefit from IT and its all pervasive, but embedded, presence in our life. Household goodies like televisions, DVD players and even Washing Machines have complex computer hardware and software embedded in them but no one needs to know any technology to use them. Do we learn pharmacology to get a relief from prescribed drugs?

Even if some parents are planning an IT career for their ward, as an engineer or a programmer, consider another reality. Almost all of our bright youngsters who made a name for themselves in the field of software had never even touched a PC till their graduation. Mind you, not even the IITians had that opportunity till the mid 80s! Still these bright minds could excel in the software field well beyond their counterparts in the western countries who had learnt computing in their schools. This fact alone should tell us that there is something else in our traditional school education that makes our minds more logical, enabling us to efficiently write the software for computers. I suspect 'that something else' in our

education is “the tables” we learnt by rote and the focus we had on arithmetic and mental sums during our schooling. Strangely, we are displacing this “sachha Ram” in our education with the new IT RAM, Sad, isn't it? I should mention one more thing before I close. Remember those counter girls in the US supermarkets, fumbling to compute the change they should return? Most of us get impatient and finally tell the girl what it is!

2002

(There are times when the entire nation gets blind to realities. Ambition to master Information Technology is laudable but the way to go about it has to be carefully examined. What made Indians good in software development has to be clearly understood. What skill set do our youngsters have that gave them an edge over others?. Fact is that none of the Indians who made a mark in American IT companies were computer literate till they finished their junior college. What did the trick was our well honed arithmetic skill to do mental sums and thereby develop a logical mind. The roots of our logical thinking lie there. Computers aid or replace such human skills and therefore, like calculators, these should be shunned during the formative years of training in developing these basic skills.)

PULL COMPUTERS OUT OF OUR SCHOOLS

People in the world are dazed by mind boggling advancement in computers and communications and its rapid impact on everyday life. The arrival of the Internet has further stepped up the pace. The IT industry is successful in convincing decision makers that this magical technology would help us transform our children's education. This IT technophobia has also induced the fear of being left behind in minds of parents. As a result, in the developed world, billions of dollars have gone to clutter classrooms with terminals and keyboards. The craze everywhere is to promote computers as a way to replace the boring old blackboard and improve teacher's productivity. In India, with our ambition to become an IT Super Power, we are chasing the same dream and computers have entered our urban schools in good number. We are now waiting for brighter students to emerge from this huge investment. Little is however proven or demonstrated to prove favorable impact of these wondrous machines in school.

There are hardly any studies comparing classes of children taught with and without help of computers that randomly allocates children into differently taught groups, as in the case of measuring efficacy of a drug. However there is a hunch that installing

computers was a good way to teach children to use these things, and thus make them fit for the 21st century. It must be a unique situation where billions of dollars are spent merely on a hunch. In fact, a new study from Israel, has compared children whose teachers do and do not use computers in the classroom. It strongly suggests that hopes for computers are just as wrong as those for classroom television; in fact worse, as it indicates that computers may even impede learning. E.g. fourth-graders taught mathematics with help of computers appear to do worse than similar fourth-graders taught without them.

A group of researchers at Stanford University have studied computers and education for many years. It has been found that almost all teachers and students in the U.S. have at least one computer at home these days. Although teachers and children rarely use computers in the classroom, both groups use computers a great deal at home. It is however found that classroom computers can be disruptive. They rarely enhance studious atmosphere in which children are most likely to learn. The new conventional wisdom is that young children in particular learn best when they face the teacher. Computers, on the other hand, encourage children to split into noisy little groups. It is found that educational software is much more one-size-fits-all than a good teacher, skilled at tailoring lessons to the varied abilities of a class. Another much vaunted advantage of computer-based learning; that it allows children to proceed at their own pace; has so far turned out to be wrong.

In our country, the global IT revolution has created huge opportunities for computer literates. IT savvy youngsters are in a great demand making lots of money. Many get opportunities to get jobs abroad. Planted in that fertile soil, Indian software guys are doing exceedingly well for themselves. Several have become billionaires. Many are climbing corporate ladders and reaching admirably great heights. These dazzling 'Indian diamonds' have attracted many multinationals to come to India, the diamond mine itself. They are creating a large number of highly paid jobs for

computer literate locals by providing services that are remotely deliverable such as call centres and other dumb jobs like mere data entry. Luckily no automation is in sight to replace these jobs that pay well. Those employed in IT sectors are earning two to three times what their counterparts earn working in other sectors of our economy.

There, however, is a flip side to all this. This gold rush has its traps. The glossy success of many in the neighbourhood and magical glamour associated with an IT career has led a large number of parents to wrongly believe that learning computers in school will give his/her ward an advantage, an edge over others. The politicians and state administrations believe it too. Popular sentiment is not to let the Andhra kids, or Marathi kids, be left behind. One can appreciate such sentiments and understand these concerns. One can also appreciate that IT businesses would want to cash in on this sentiment and build a profitable business of selling PCs and other IT gizmos to schools. But we, as a society, need to pause and think. One feels greatly concerned; for instance, as one finds that even educators and policy makers are victims of this IT technophobia. It is clear that such an investment will be not be rewarding or it might even hurt.

Let's understand first what made Indians earn this reputation? It is broadly acknowledged that fluency in English language; our thrust on learning arithmetic in our early education and social respect we have for the learned has given us a mindset that comfortably handles logic. This attribute is basically what makes us ideal raw material for the software industry. Being a low wage country has further helped to pour more honey on this Indian pancake.

Let's recognise that a whole lot of IT talent that gave us our worldwide reputation, has indeed been thrown up by our current system of education, in spite of all its limitations. Also make a note that the western system of school education, which has since long adopted what we are aspiring to do, has indeed failed to

develop even comparable IT talent. We blame ourselves for learning multiplication tables by heart and our learning things by rote. The westerners don't do this, we are told. All of us however laugh as we see tellers in the stores abroad fumbling while returning due change. Is it therefore logical for us to believe that our inherent IT skills have something to do with the way we learnt, often by rote?.

Imagine if every child had been using a digital calculator to add a set of 15 numbers or to multiply 27 by 9. Would this not hurt their skills to do so mentally? And how about they using 'MS Word' to write an essay in school with its spell check feature?. Would that help us to hand write a note without making spelling mistakes? Just think of school kids giving up using a pen or pencil and use an inkjet printer do their job of writing. What if researchers stop wading through libraries to gather information and references before writing an article?. Consider if instead, they were to take a shortcut to access already compiled references at computer speed via Internet Search Engines. Would all this help or hurt our learning faculties? Is it better to tie a float around our waist instead of learning to swim just because both stop us from sinking? We learn to walk, run and climb by ourselves. Some risk their lives to scale Everest even without an oxygen cylinder on their backs. All of this could also be done in comfort with technological aids but still we aspire for and enjoy doing it ourselves. If a human being wants to remain a master of his own future, shouldn't she or he first learn to do everything on her or his own steam? How else can one master these newly invented beasts of the Knowledge Age?

Before we let our youngsters develop the handicap by growing up with machine aided learning and sacrifice development of their mental faculties, let's look at fundamentals. Computers are automating tools. They are designed to take over functions that were hitherto human. The spell check feature is to replace our ignorance and not to teach us how to spell correctly.

There is yet another myth to be cleared. Becoming a computer

professional is entirely different than becoming computer literate. In present times everyone above, say, eighteen has to be computer literate. There is no doubt about it. But that's knowing how to use a word processor or a spreadsheet or learning to browse on the Internet. Luckily all this doesn't take too long. A week's training is more than enough.

There is also a fear psychosis of being 'left behind'. It shouldn't at all scare the community. The IT industry has created the scare to sell their wares and digitise the masses. Fear of obsolescence and unsold stocks in the warehouse is, in fact, a continuing preoccupation of an entire IT Industry. It is they who are scared.

The third reason for our concern is the lack of software. We are taking PCs into classrooms without bothering about having the right kind of learning or teaching software. Further PC is basically a self-learning tool, unsuitable for group learning. That's why it is called Personal!. The quality of learning things on computers depends solely on the availability and the quality of the software. There is little available that is field proven.

The last, but not the least, concern is the formidably powerful Internet. It indeed is a two edged weapon since it gives anyone effortless access to any information, desirable and undesirable. Young children surely need to learn about sex but it is certainly not of the kind Americans offer us on the Internet. Pornography permeates students minds. Also students get affected by peer-group pressure. Students are very resourceful when it comes to getting what their curiosity demands. Neither can anyone stop delivery of sex on the net. For several years over 40% of the Comdex show in Las Vegas was devoted to interactive sex. Then there are video games teaching interactive violence and other undesirable but attractive themes. Once a child gets addicted to games or the Internet, one can forget the normal education. As it is, kids today are already being prematurely informed through television about things that rob them of their childhood. Uncontrolled access to Internet will only add further to this malaise.

The IT glitter is glamorous and mesmerizing but it should not cloud our thinking. Let parents and teachers think what we want for our kids. Let experts deliberate and brainstorm. Let us not leave this decision to politicians or the IT industry, since for them, selling PCs to schools is a profitable business. Consider large investments that are being thoughtlessly made using people's money to put computers in almost every school. Neither have we given a careful thought nor there is clarity in our objectives. Surprisingly even eminent educators haven't been seen protesting. A debate is therefore necessary on how PCs in our schools may affect developing basic essential learning faculties of students.

The worst side effect of this is; precious capital that should have been invested on better teacher training and school infrastructure will be wasted on these glamour gizmos.

2003

(When a politician like Mr. Pramod Mahajan, our smart IT minister, claimed in 2003 that we are an “IT super Power”, one could ignore it but when our IT Industry leaders claimed it, the author found it necessary to challenge such a claim. In this article he examines ground realities and establishes the futility of making such a premature claim. We have a long way to go, he says.)

INDIAN IT SECTOR – NO INDUSTRY: JUST SERVICE

IBM, Microsoft, Novell, Computer Associates, Oracle, AT&T, Fujitsu, Motorola, EDS, SAP, Hewlett Packard and such other global corporations can rightfully claim that they are the “IT Industry”. Industry, in a classical sense, is the one that delivers products and these corporations have ‘software products’ besides hardware and their bulk revenues come from selling copies of these software products and then some more revenues from product license fees and help in implementation. This makes global IT giants different from Indian software companies selling software development services. Tata Consultancy Services is indeed the biggest of them all, having billed more than a billion dollars this year. Equally well known are companies like Infosys, Wipro, Satyam and a few others. All are admirably successful, very profitable, fast growing and globally well respected. The bottom line is these large profitable ventures are in software business that serve software industries and software users. They are Software houses from India who have been effectively providing many of the Fortune 500 corporations like Morgan Stanley, AT&T, General Electric, Reebok, General Motors, Fujitsu, Boeing, Coca-Cola, Pepsi, Swissair and British Airways with efficient software solutions. Unfortunately they do not qualify to be called as “Software Industry”. We must therefore recognize that while India is in very profitable and a growing “IT Business”, we do not have IT Industries, owning and marketing packaged software solutions in large volumes. Many of our IT companies

are irreplaceable and very high in the value chain but they are still mere sub-contractors. There is every reason for us to be proud of what these businesses have done to our economy and our people but to claim at this stage that we are an *IT Super Power* is rather courageous. Someone out there could be laughing. We have some distance to go before getting acknowledged as any kind of an IT Superpower. Most of the global IT giants have operations in India but not their head quarters. So no one, amongst the top 50 global IT giants, could be called Indian.

The 21st Century began with a bang for global IT Industry in general and Indian IT businesses in particular. IT businesses in India had notched over 50% growth in revenue in 2000-01 and they might grow at a similar or even better rate over the next three four years. Last year globally investors had gone bonkers putting big dollars on even paper companies in IT that promised little besides false hopes. Prosperity was visible everywhere. The easy money went into creating opulent offices with exotic interiors, fancy salaries, public relations, and big cars. Business and First Class seats on transcontinental flights were full of jet-setting jean clad young IT professionals with their latest laptops. Indians have been doing very well as programmers, system analysts and even data entry operators on princely salaries. It all began in the late 90s with the Y2K scare and global rush to India. India has been digging gold till a year back. Almost every home in our six metros has at least one young person working abroad as an IT professional. That was the time when every young Indian graduate was chasing an IT job. IT training outfits were getting fat fees for grooming them in IT skills.

Then there was a set back in 2001-02 when the massacre began. Many of the IT companies that were like *Havamahals* were lost as venture funds got exhausted. These companies were just façades, with no core strength or intrinsic value. Very few could show promised performance. The real Silicon Valley in North America and its fake copies in Bangalore and Hyderabad were full of such start-ups flush with large venture funds. It was Diwali

time that was soon followed by Divala time for investors and gala time for the promoters. In the US the set back was spectacular. The American dream for many proved short lived. Jobs evaporated as speedily they came. There was panic. Things are still unsettled. Jobs are still being lost. The reaction was as absurd as the gold rush. Stable players like TCS, Infosys and others momentarily had reduced growth rate but they will do growingly better.

In India, things have been bad especially for small IT outfits. Many of these have been flourishing two years ago but now fallen on bad times. But we should find solace in the fact that job losses have not been as severe as in the US. The Industry slow down was reflected in its annual growth. Growth dropped to 23% in 2001-02 from 50% the previous year. Since earnings per person dropped sharply, reduced growth didn't lead to as many job losses. Billing rates had fallen for almost a year by about 20 to 25% but for good players it is still improving. The volume of work however remained the same or increased somewhat. That's why top well-structured companies with a good image are still growing remarkably well in contrast to what is happening to service companies in the US. It is an indication that offshore work is growing, replacing on-site jobs. The smaller ones, especially those shopping bodies, are facing tough times. More jobs have also been growing with IT users in the country like banks, insurance companies etc than the IT companies. Uncertainty in the industry is still very high. Stock markets have much less enthusiasm about the IT sector than a year ago.

I also see a danger for five top Indian IT companies. Many multinationals who have been very important clients of these big five are now expanding their own operations in India and this will result in Indian services companies losing at least some clients in times to come. More and more of the Fortune 500 companies are opening 100% owned subsidiaries in India. The SARS scare will stimulate these activities even more. SARS will certainly, and adversely, affect East Asian countries like Singapore, Hong Kong and Taiwan. If India is smart or lucky, it will be the

beneficiary. My own feeling is that local job opportunities will grow over the next few years but TCS, Infosys, Wipro, Satyam and others may have to create better strategies to keep growing.

DOMESTIC GROWTH:

The IT Industry in India is a rare example where exports grew far more rapidly than sales in India. This may ultimately prove to be the biggest single mistake of India. Use of computers within Central and State Government administration so far is proving to be merely an opportunity for IT hardware companies to sell computers and printers. Ever since 1986 I have witnessed this disaster closely. Since then I have been observing that the domestic use of IT is not growing as much as it should or could have. On one hand Indian software companies aren't creating attractive solutions to promote wider use of IT and, on the other, major IT users like financial institutions and governments have been unable to benefit from IT usage for increased efficiency. There is much talk about IT but ground realities are different. Indian customers in reality can't afford to pay for software as much as counterparts in the developed world. There isn't enough value for money. But that makes the domestic market unattractive for IT companies. As a result, the drop in IT growth in the domestic market over the past two years was sharper. It fell from 31% to 11% in domestic market whereas the drop was 37% to 21% in the export market. This, I personally believe, will eventually hurt our export growth.

In fact, lack of solutions oriented growth in the local market has its reflection in software export too. The nature of our software export, with services provided by certain exceptions like TCS, Infosys, Wipro etc, has been more by way of body shopping than as a solution provider. One often talks of India's IT firms focusing on software services and not creating software products where rewards are phenomenal. Significantly, our IT companies have been doing little to create a home turf to practice product development as a turnkey solution and that's why we see little in the global market by way of Indian software packaged solutions.

Our billing abroad has therefore remained primarily based on man-hour cost and not embedded intellectual property as in case of say, Israel. We have very wealthy software companies with huge cash reserves but they do not possess real IPR that would have given them intrinsic strength. As a result we are rich but not powerful.

WEAKNESS IN HARDWARE:

Let us understand realities since India wants its dream of being an IT Super Power to come true. Information Technology encompasses three interlinked technologies of microelectronics, communications and computers. Our expertise relates primarily to software skills like in systems analysis and programming languages. Our expertise is a piece of a total jigsaw puzzle. We have nothing in hardware except skills in micro-electronic chip design and the embedded software in programmable controllers. It is an important part but it, by itself, isn't enough to have any kind of a grip over a global IT Industry. We do not have any semiconductor fab to process chips with sub-micron geometry. The Semiconductor Complex Ltd in Chandigarh is indeed an apology to our Government's planning skills and a legacy of our past sins. Some bright Indians may have developed admirable skills to imaginatively design chips and write processing software to make ultra high density packaging of modern CPU chipsets, but we have no facility to gainfully use their talents in India. The next high technology skills are in micro-mechanical devices that result in products like print heads, stored memory devices etc. We have nothing to offer here. We have nothing to offer even in precision assembly of mass manufactured parts like drives, displays etc. Taiwan, South Korea and, more recently China, have taken away that honour. The IT component industry output of China last year was 200,000 crores and ours was less than 7000 crores! Ninth Plan target for hardware was 65000 crores and we achieved less than half at 27000 crores. Our work attitude, tax complexity and our labour laws are blocking our way to promote a healthy manufacturing industry. In China, workers have to work

60 hours a week and get just seven paid holidays besides weekends. Today our IT hardware skills are limited to trading and protecting that business with tariff barriers. As a country we have nothing more than billions of cheap man-hours with software writing skills which we sell at high prices and earn many dollars. This is very good since the earned dollar is an earned dollar even if it is earned by shopping bodies. But let us not forget that with this one can't dream of becoming an IT Super Power.

SOFTWARE SERVICES AND PRODUCTS:

When one thinks of real leadership in software, names of Microsoft, Oracle and SAP come to mind. Their strength is derived out of owning software products as packaged solutions. They are like publishers of best-seller books, making ever-increasing profits as copies of their products get sold. Today to enter that market is not easy. We have big software companies but they are not big enough to take on these giants. IBM is over \$80 billion, Microsoft is \$27 billion, EDS is \$21 billion and our Infosys or Wipro are about \$0.7 billion. We have no hardware alliances or likely to have them as that between Microsoft and Intel. It is therefore good to know our limitations. At the same time, however, there is a great variety of boxed software products from a host of medium sized companies that one encounters on racks of computer stores but none of them are Indian. That is a shame indeed. It is true that same type of software service repeatedly sold can act like a software product but that too needs a lot of customization and therefore costs more. Our companies also lack domain knowledge in user industries and thus lack core strengths to create packaged solutions. The situation is however changing and many Indian companies have plans to get into the products market.

PROSPECTS:

In the mid 80s, during the time I was Chairing the Electronics Commission, we set the Software rolling by encouraging Texas Instruments to start a Software Development Centre in Bangalore and by starting Software Technology Parks for many others in

Bangalore, Noida, Pune and Bhubaneswar. We pushed average annual growth rate of the Electronic Industry from 15% to 40% through a number of policy initiatives. Electronics output grew from 1200 crores in 1984-85 to 9400 crores in 1989-90. In the decade of the 90s the forward thrust continued and Indians almost naturally took to software development. The IT Industry today is over 60,000 crores and the biggest earner of foreign exchange. What we export may, in majority, be man-hours but we get handsomely paid for it. Software enabled services like Call Centres may have nothing to do with software but there too we get good money per seat. A Green dollar is a dollar, whether we earn it out of exporting sweat like blue-collared labour to the Middle-east or intellectual labour now. We should be glad that in our otherwise gloomy export scene, we have found a cash cow. While we debate on our failure to develop software products that becomes best sellers like Windows or SAP, we must realise that the software industry is essentially individual centred and therefore democratic. It distributes its wealth widely and therefore a very large number of Indians have dramatically improved their financial status and have become wealthy. This is unlike our blue collared industrial labour.

2005

(The author pleads that while we should be happy and proud that India has earned a reputation for itself as a country with remarkable IT Skills, we should not get carried away and make a claim that we are heading towards becoming the next IT Super Power. He pleads that we should just look across the Himalayas and study what is happening in China as seen in globally accepted business statistics. This should aptly establish that at least for now China is nearer that goal than India.)

THE GREAT LEAP AHEAD: CHINA, NOT INDIA WILL BECOME A GLOBAL IT SUPERPOWER

Indians have made a name for themselves in the world for their IT software skills. Wide usage of English, focus on maths in early education and low cost of skilled manpower has helped India attract profitable business in software services. Indian Engineers from IITs and other institutions, who migrated to the US during the last three decades, have added to the confidence of the global community by their impressive performance in American Universities, Business Schools and Multi-national companies as professional managers. The Y2K panic of the late 90s also came as God's Gift. The spectacular financial success of Indian software companies in software exports has deservedly got global admiration for their achievements.

The prospects for sustained growth of this activity also seem to be very good. Some companies are carefully moving up services in the value chain but major activity is still in profitable but the mundane area of software outsourced jobs like development, maintenance and porting of software according to customer specifications based on standard software packages of foreign origin. This export is very profitable and helped creation of many well paid white collar jobs in urban India. Almost every family in metro cities has a member working abroad and making good money. It has made our economy buoyant. This led some

enthusiastic politicians to claim that India is on its way to soon becoming a global IT Super Power. Unfortunately that claim does not hold much water at least today when one merely glances at what is happening in the IT arena right across our Himalayan border. This article will reveal that China is way ahead of us in every segment of the IT sector. To get into that position is not easy but certainly not impossible for India if we, as a nation, plan and discipline ourselves to get there. If China did it, we can do it too but mere pride will not take us too far. Writing such articles is indeed no solution but it might help us to move in an appropriate direction.

Let us understand that the IT Industry is not just about computer software services. That is a small part of the IT business. An IT enabled BPO has created well paid clerical jobs like in Call Centres. Even though it is a profitable service business, it is indeed not part of the IT Industry, in fact not an industry at all. No serious analyst counts ITES as part of the IT industry. Government therefore has no reason to give income tax exemption to this service business out of any fear of limiting its growth. If we keep the quality high, that business will grow none the less.

IT industry is certainly not just about providing software Services. More importantly it includes Software Products, IT Hardware like computers & peripherals and various types of networks. China has managed a strong global presence in all these four segments whereas India has done well merely in export of software services. China has been carefully planning and has promoted IT and Communication Industry in their country. They do so far more comprehensively than India.

The core strength of China in Information Technology comes from three important areas that we miss in India almost completely.

Firstly China makes huge domestic use of IT and benefits from it in multiple ways. This process is on for the last two decades with a growing thrust in each passing year. Let us look at the statistics.

The number of Personal Computers sold in China in 2003 was 13 million versus 2.4 million in India. The Internet Users in China that year was 78 million whereas in India people on the web were only 16 million. There are 330 million Mobile phones today in China versus 46 million in India. The landlines in China are 137 per 1000 versus just 38 per 1000 in India. Almost all Software products used within that country is in Chinese. All global Software Products like Windows are available in Chinese. This has helped China to have a huge domestic Software business unlike India. In fact if we consider domestic and export of software business together, China's software Industry is larger than that of India. Even software piracy in China is far bigger than in India. The Use of IT by China has given that country many down stream benefits in terms of business efficiency and decision making speed. IT use in India is small. Use of IT in the government's public databases in India like land records, public health, law and order etc is, if at all, only miniscule.

India's next major weakness is not in having any significant Software Products. While some large Indian companies are going up the value chain in software services, we have no software products to talk about. Therefore most of our software earnings are based on man-hours deployed. Revenues out of repeated sale of a software product is what made giants like Microsoft or SAP grow and earn huge profits on these year after year. All Global IT giants like IBM, Microsoft, HP, Borland etc continue to grow on strength of products like Windows OS, Office, SQL, C++ etc. India's software services industry has nothing except large profits earned mainly with low cost intelligent manpower. Their tax free profits neither seem to go into product development. Tax exemption till 2010 will not make it available for financing national development projects. It has merely made some Indians billionaires. In fact one wonders which way exemption on income tax to this highly profitable and market driven industry is justified. This could have helped us fund infrastructure development and help to create strong manufacturing industry. Most of our software

companies are mere contractors, moving from contract to contract. Their raw material is low cost manpower and their capital is restricted to brain power of their employees; very few have IPR of their own. They grow more by reputation and financial ability to take on massive jobs demanding large number of man-hours of skilled manpower. One can therefore see them keeping a large 'stock' of manpower. This under-utilised employees working (?) for these giants is their stock in trade. For the last few years the buzz word is the BPO business. But here too the western companies seem to be getting disillusioned. A recent study shows that large numbers of them are unhappy about outsourcing to distant countries and are looking for a local alternative in their own country.

China, on the other hand, has a better presence in SW Products area. Firstly the size of its domestic industry demands products in Chinese language. That in itself is a big business in products. Besides that China has global Software Products too. Chinese have developed software products of value like TD-SEGMA for 3G mobile services, WAPI for wireless LAN services, EVD protocol for DVD etc. India has yet to get there. China has even evolved a new Operating System; RED DRAGON.

Next consider developing core strengths like investment in the future. According to one report China has 55 scientists per lakh population whereas India has 16. These talents then are encouraged to move to the United States getting post-graduate degrees and return. These scientists help adding to intellectual capital of all the Sinic states, viz, Taiwan, China, Hong Kong and Singapore, China has many 'business incubators' and 54 hi-tech research labs for IT, Telecom and Electronics that gave birth to 6700 industries. India has almost none. China consumes 70 times more microchips than India but imports only 14% of its chips and manufactures the rest in its own foundries. India imports almost 100% of its chips out of which about 40% come from China!. This Chip production in China has attracted many multinationals to establish design centres in China. Free Scale Semiconductors,

Texas Instruments, Agilent; Infinion etc design their chips in their design centres in China.

China's IT companies are also of mammoth size as compared to those in India. 'Huawei' Company's annual turnover in the year 2003-4 was \$4.58 billion which is close to the sum of annual business of India's three top IT giants; Infosys, Wipro and TCS. ZTE, another Chinese IT company, has recorded sales that year of \$4.05 billion.

Finally and most importantly China has today turned itself into a factory for the world. A carefully planned strategy stretching over last two decades has placed China in that enviable position. China has impressive growth in vertically integrated manufacturing from design to manufacture of components, semiconductor chips, electro-mechanical parts, plastic parts, precision processed subassemblies and final products. Toshiba's almost 100% production is now in China. But China's planned growth strategy covers not only IT but all other industry segments. Even in IT, it leads in hardware with its HW exports much higher than our SW exports. Its SW industry is as large as India's because domestic SW sales are several folds of India. That strategy has created a huge number of new blue collared jobs in addition to IT jobs. Notwithstanding China's lack of English Language skills, China's software prowess should not be underestimated. One report states that China has created 60 times more unskilled and semiskilled jobs for its people during 1993 – 2003 period than India.

The 1994 New Labour Policy of China attracted almost every Multinational to shift its manufacturing to China. Chinese Government ensured the right environment not only with its pragmatic labour policy but also be put in place by appropriate infrastructure conducive to industry efficiency. The index of a nation's progress is often measured by consumption of steel. In 2003, China consumed 225 million tons whereas India's consumption was mere 28 million tons. That helped China to attract huge Direct Foreign Investment with growing numbers

each year. In 2003 the FDI inflow of China was \$54 billion. The same year India attracted only \$4 billion by way of FDI.

Through comprehensive and long term thought, China has put itself on a path of progress. In my opinion, long and uninterrupted rule by a clever and deeply patriotic set of leaders has helped China to get where it is today. After Mao's death and when the Gang of Five were overthrown, Deng Xiaoping was instrumental in getting China into the position it is in today. The fascinating part of China's progress is its reach. The benefits have reached huge mass of Chinese even in its hinterlands. Xinjiang and Tibet, regions comprising several minorities have been integrated into national mainstream with a uniformity and a stamp that is characteristically Chinese.

India, in my opinion, will have difficulty to catch up with China. Nothing is wrong with Indians but we have some basic problems that appear insurmountable. We will certainly progress but becoming an IT power bigger than China is not possible. Our problem is systemic. India's political leadership has always been transient and therefore insecure since mid-seventies. Broadly speaking leaders have been either corrupt or have retained their power by repeatedly shielding corrupt and the criminal. None of these therefore have time for long term strategies for planned growth. Most politicians remaining in power for a transient period are more involved in political games of survival than thinking of any long term plans for development or pursuing it with any sincerity. Many of those leading India have been regionally popular leaders with little grip over this sub-continent sized multilingual nation. These men are street smart but poorly informed and without any vision for the country. In a short period they gain power that is therefore used for personal or regional gains. The continuity of governance is in the hands of the bureaucracy. But even these intellectually well endowed and well informed babus do little more than providing administrative continuity. There is a hierarchy and by the time they get to head

a ministry or able to structure a plan, they get close to their retirement. Most therefore do little than ensure continuity and are generally getting busy with post retirement rehabilitation. India therefore lacks the government that can think of even a decade of continuity. India's progress happens due to enterprise of those who are smart and therefore benefits get restricted to those few. We would therefore have a growing number of millionaires and billionaires but rest of the billion Indians will have to live with residual benefits from development achieved to benefit the rich. The 2003 National Income of China is \$1410 billion versus \$598 billion of India. India's income may also grow by 7 to 8% per annum but unlike China it would not be as equitable.

2006

IS TAX SHELTER TO INFORMATION TECHNOLOGY BUSINESS JUSTIFIED AND DESIRABLE?

The recent public debate about IT started by former P.M. Mr. Deve Gowda, the Farmer, against Mr. Narayana Murthy may have political overtones but we all know that many non-IT professionals feel that IT business in our country is pampered beyond the need through measures like extensive tax shelter. These professionals feel that this is unjust especially to those involved in other equally important and modern industries like Telecom and Broadcasting. Non IT segments of the society have been murmuring about this since some time but most were silent for fear of being called jealous. I, however, has been publicly debating the wisdom of giving IT Business wide ranging tax shelter for a long time since I have no reason to be either jealous or be afraid of being accused so. In fact, I am IT friendly literate urbanite managing Industry manufacturing IT Terminals. As a former Policy Planner and “ICE” man, I am however convinced that tax shelter is actually hurting the IT growth in the country. I believe that this is the result of glamorous IT business blinding our planners from ground realities, both socially and industrially. Let me explain.

No one can refute that India’s breakthrough in IT services has turned our fortunes as a country as well as those of millions of literate middle class families and Industry Honchos. I personally feel happy since I have had something to do with the current IT success; first informally, as the Electronics Mate of Rajiv Gandhi from 1975 till his death and then formally, as his advisor from 1983. The direction of the current IT focus of the Government was set on 16th August 1983, when the new liberal and largely de-licensed Electronics Policy was adopted by the Government of India at the behest of its newly elected, young IT savvy MP, RG. A week later, over 50 Industry Stalwarts including Ratan Tata were invited by me to highlight Rajiv’s role in bringing about that dramatic change. History will reveal that ever since 1983,

entire ICE sector has consistently grown at a remarkable annual rate ranging from 20 to 45%. ICE business in the country has gone up from a mere 1200 crore in 1983 to 8900 crore in 1990 to over 150,000 crore in 2005. Again, I also feel gratified that I could help to spread IT usage by profitably delivering to young IT professionals in the country a 'fully loaded' Personal Computer at a price of Rs.10, 000/- in 1988 via ET&T when private players like HCL were offering PCs at double the price.

There is no denial that IT has brought riches to a large section of our literate middle class. A shortage of manpower also has kept salary packages at an all time high and this will go on since attrition is still rampant. However, this has enhanced and widened the economic and cultural gap, not only between urban and rural communities but also between blue and white collared workers and managers as well as IT and non-IT professionals. No wonder therefore that there is discontent and brooding amongst non-IT society at large. It is clear that no one can blame the IT beneficiaries but the resultant situation is certainly hurting many in their everyday life and lifestyle.

It is worthwhile to identify those benefited by the IT Industry. All those who are directly involved in IT business as professionals, investors and workers are direct beneficiaries. Those involved in IT education and head-hunters fall in the second tier. In the third tier are downstream beneficiaries like architects, builders, interior designers, and telecom service providers, UPS and generator manufacturers and also hardware traders. The consequential beneficiaries are judicious users of IT tools for organisational efficiency, and others like builders, vehicles manufacturers, restaurant owners, retail businessmen, entertainment industry, money lenders etc. All this is great, commercially. The signs of prosperity are extensively visible in urban India. May be 10% of the urban population is riding the wave.

The IT Business however has brought little benefits to the balance 90% majority. In fact IT prosperity has pushed up urban cost of

living hurting the rest. What is difficult to understand is why such a market driven, self-propelled, fast growing, highly profitable, export oriented and environment friendly business continues to enjoy decades of complete tax exemption in India. IT pays no income tax, no import duty, no excise, little sales tax and no octroi! It is like a well placed son earning high salary in a joint family contributing nothing to the home expenses and getting pampered with free food and shelter. As if this is not enough, this wealthy son also complains that the house is not well furnished! Not even the equally important and equally modern Telecom Services Industry is lucky to have such a tax break. In fact the tertiary socio-economic benefits of the telecom industry, in an immediate context, are far greater than the IT business since wide and deep telephone connectivity is aiding the efficiency of even the unorganised service sector. It has improved the personal efficiency and the comfort of every individual. Even the broadcasting industry today is serving a social cause of making the entire nation informed and, in a sense, helping us bypass yet another unresolved problem of wide spread illiteracy. Why is there no tax exemption for those investing in Telecom and Television? In fact IT in India is more a business than Industry. Commercial activity is normally called an Industry when it makes products and sells them repeatedly to make profits. IT software business in India is largely selling man-hours at various skill levels in the value chain. Unlike Telecom or Television, IT profits are trade profits, derived out of buying low cost manpower and selling it with great profits. That is welcome and even admirable. What IT business does is valuable for India but such a successful and wealthy industry should have been used by the governments to earn revenues to finance its expenses. Why shouldn't non-IT citizens rightfully get a pie of this new source of wealth by making IT businesses pay all the taxes like other businesses?

We can witness to day the modernity of private property development in urban India that dramatically contrasts with shoddy public infrastructure and unsightly skeletons of sick units

in Industrial Estates. Industries employing blue collared workers have pulled down their shutters and sold real estate in cities creating huge unemployment while making good money they can't make running a manufacturing industry in India. Those who do suffer associated managerial headaches caused by the corrupt bureaucracy and the burden of multiple taxes. The well known engineer turned economist, Dr. Vijay Kelkar, after a careful study, had identified how complexity and multiplicity of state and central taxes is ruining Indian Manufacturing Industry but his advice seems to have been ignored. In any case giving advice is futile since wise don't need it and unwise don't heed it. The survivors in our manufacturing industry have today largely turned into traders of Chinese and other imported goods. IT Hardware is no exception. Even the agricultural sector, as fundamental manufacturer of food, is on a decline. The rural young are moving into city slums. They too earn better but not good enough to live decently or afford to support their families back in villages. Infrastructural inadequacies that IT complains are to a large extent funds problem.

Unfortunately those who can, and who should, step in to correct this situation are themselves suffering seriously from IT fever and an IT lure to understand the reality. It is proper for the government to nurture and protect industries in their infancy. Almost till late nineties, this was proper but by then the IT Business was by and large self-propelled. The Y2K madness of the world has pushed its growth even further and had in the process given India a place of honour in global IT world. It was then that the government should have stepped in build the necessary infrastructure by taxing this business same as other businesses and using it to improve public infrastructure. According to one estimate at least 18000 crores would have been found for that worthy cause. Such an investment would have not only helped IT business to decorate our body-shops but also the manufacturing industry; giving it a strong muscle to win manufacturing contracts away from China and create millions of new blue collared jobs in

the process, as China has done.

The discontent so far was at a whispering level, now it is getting voiced. Maybe Deve Gowda has his own agenda and reasons to go after a noble soul and a well meaning socialist IT Billionaire like Mr. Narayana Murthy but the public focus that the former P.M. has helped to create is useful in provoking planners to take cognisance of the issues involved and find solutions. One thing is certain, first rate infrastructure that we could have created with the help of our IT success would have helped us spread not only IT but all types of industries all over the country including the North-East where people keep killing each other in genocide wars and encouraging movements for secession out of frustration.

The time has come for the government to step in and correct the situation. I know that, if he was still around, Rajiv Gandhi would have definitely done the needful long ago.

Two

**Electronic Media-
Much Ignored Change Agent**

1994

(The International Telecommunication Union had chosen 'Telecommunication and Culture' as the theme of its World Telecommunication Day on May 17, 1994. The author delivered a special address on this occasion in Bombay at a meeting jointly held by the Institution of Electronic and Telecom Engineers, and the Broadcast Society of India)

TELECOMMUNICATION AND CULTURE

Telecommunication Engineers can rightly feel proud that for the last four decades they have unveiled to the world, month after month, a wide range of marvels in telecommunications. These have made the world smaller and also the prospects of its people brighter. Distance is no more a handicap.

Starting with the simple telegraph, the inventors have given the world the telephone, Phonographs, Radios, Televisions, Video Recorders, Satellite Communication, World Pagers, Cellular Mobile Phones, a whole new range of magical productions, with computer based intelligence and so on. With such a history and legacy left for them by their colleagues, telecom engineers could also claim to be the agents of change. In fact, the most striking characteristic of our times is Change, a change that leads to development; one that enables people to be more creative, more productive and efficient. Interestingly communication also has become a process of reporting change, making change, witnessing change and heralding change. Telecommunication, in a sense, has unleashed information and given it new wings to spread rapidly and effectively. It has enabled the world to carry voice, data and live pictures from anywhere to anywhere with incredible speed, authenticity and clarity. I won't be surprised if every citizen has his own wireless personal telephone within a decade. Every communication too will be portable, powerful and affordable for masses.

Having realised this miracle, it is essential for the society to think

of its consequences. It is time for us to ponder over the question of whether this information explosion will help our society, add to the knowledge of those who, in the past, had little access to even simple information and whether it will enhance the wisdom of those who gain this new knowledge. The information explosion poses both an opportunity and a threat. It depends on the individual how he uses information and to what end. The world has been given a new tool and many of us are today wondering whether we, as a society, will use this tool effectively as a vehicle for faster development or the commercial world will hijack it.. It is, therefore, significant and important for the social scientists to carry out field research on effects of this information explosion on communities and give the government a referral document. We will need to carry out such a study with the help of sociologists and religious and cultural leaders. Telecommunication is *sadhan* – the medium, to be correlated with *sadhya* – the human goals. Even though the hardware we develop for Telecommunication is ‘Value Neutral’, the software that goes with it is not. One can’t separate the two and that is what led the oracle of the electronic media age, Marshall MacLuhan to say ‘the medium is the message’.

In India, we have 600 million rural people living in a multitude of small settlements, villages and small towns scattered across an immense area of 3.28 million square kilometres. Today we are reaching the majority of them via satellite Television and Radio. It is unfortunately only a one-way communication and is, therefore, likely to be hijacked and misused to carry messages not necessarily to enrich the viewers. Our plans to provide rural folks with duplex communication, such as voice telephones and Fax service are moving at a snail’s pace. Time has come to de-license communication industry like we de-licensed consumer electronics in 1983. Without this, during the next few years, the only significant means of communication to these communities will be just one way. We are going to bombard programmes on them rather relentlessly. What is going to be the impact of this?

In spite of having Television in India for over 30 years and Radio for much longer, we have no reliable data on what has been the impact of these media on rural masses. What is the social, cultural and political manifestation of this new media and its messages on various sections of our society? There are no planned investigations into this. In any case we can't expect any better from our ministers. India is a hypocritical country where people mouth platitudes, especially the ones in power. The central Government spends each year over Rs.600 crores of Taxpayer's money on Radio and Television and it further earns over Rs.350 crores of advertisement revenue. In spite of this, it has not spent any money on carrying out even a single study on this subject of any significant nature. Funding of say ten crores to institutions like Tata Institute of Social Sciences would have given us some reliable research and statistics to plan the national strategies or at least helped us verify perceptions with a dependable data base. This we have to impress upon our Government and the parliamentarians.

In the absence of our own statistical information and research findings, let us look at what is available elsewhere in the world from which we could draw some inferences. These findings of the leading social scientists will show us how the traditional media people have consistently underestimated the culture-changing effects of the Television. Television has the ability to deliver messages into the intimate environment of millions of private homes, touching the lives of an entire household, projecting to an entire family ideas intermingled with powerful drama. Dr. George Gerbner, a US media scientist, has established with extensive research that the aggregate flow of reiterated formats and formulae cultivates' the social environment almost like the farming cultivates the natural environment. We see glimpses of this in our own homes today when tiny tots, even before they learn to string a sentence, sing commercial jingles. This also is because of the Indian emphasis on one-upmanship; also the pressure exerted by parents and the peer group... What an immense power indeed! Another US social scientist, Dr. John Goodlad, in his book, 'A Place Called

School' points out that over a period between 1960 and 1980, television moved from eighth place to third place in terms of influencing youth aged 13 to 19. In 1980, the average American child was watching TV for over two hours in a day. Figures in India, as we all know, are almost identical. That prompted me to choose 'The Third Parent' as a title for my book on media. In 1983, Dr. Marie Winn, in her book, 'Children without Childhood' established television's enormously powerful and hypnotic hold over the young minds. She proved how every variety of human brutality and violence, aberrant models of dumb adults indulging in buffoonery, has given to children a distorted insight into the adult life and how this has led these youngsters to lose respect for elders, pushing them prematurely into adulthood. Dr. Gilbert Sewell in his 'Necessary Lessons', reaffirms that Television cuts at the margin between childhood and adulthood by revealing the secrets, mysteries, contradictions and tragedies of adult life. It, therefore, hastens the end of childhood. Children start behaving like adults too soon and expect parents to treat them as such. Hindu scriptures tell us to treat a son like a friend once he is sixteen; with television we may have to push this limit down to ten.

Telecommunications is often called a tool for rapid development. Simplex, variety such as Television or Radio is however, more like a knife. In the hands of a competent surgeon it saves lives but in the hands of a ruthless criminal it can take lives. It is the hand behind the scene that matters. In the case of one way simplex communication medium such as Radio or Television, we have seen, this is true. History has recorded how Adolph Hitler used Radio to mesmerise an entire nation into accepting genocide. The Nuremberg rallies were an example of how one man used propaganda to great effect. Propaganda in modern times pales before what Gobbels and Hitler orchestrated in Germany. Misuse of TV by politicians and advertisers is too well known to reiterate. In India it can be said that politics and cricket is the opiate of the masses. Also Indians can be swayed to one or the other group in spite of education and social rearing. This is because Indian polity

is inherently divisive in nature. In this context I believe Macaulay and Winston Churchill understood the Indian psyche very well. People accept conditioning without question since this is the way they've been brought up.

In a duplex mode, however, there exists a mutuality and real exchange, a dialogue which makes communication much less dangerous. It helps the right kind of learning and less likely to become brain-washing. It helps the efficient to become more efficient. In a broader sense such bidirectional communication supports and strengthens democracy. A Telephone and a Fax machine are thus entirely different animals from a Radio or a Television. My friend, Sam Pitroda often talks about how the enhanced strengths of telecom technology led to the early demise of communism in Eastern Europe. This can be likened to the analogy of the forbidden apple which God had told Adam and Eve not to touch. Knowledge is power, and the glamour of Western civilisation, relentlessly portrayed by the media, can have an effect on even the most rational and sane of people. If we consider a sociological paradigm, I believe media and telecommunications have a great hold on people. The ability of Radio and TV to be used for development depends on media ownership and its relationship with the target audience. But that is not so with Telephones and Faxes. The inept owner, the network Manager, can mismanage information porting but this will only affect accessibility and quality of communication. It can not influence the message. The network provider can never influence its utilisation. Like the DoT, the service provider can procrastinate, mess up management, maintain the system poorly, treat the subscribers callously, insist on monopoly, etc; but once a telephone is connected, once a Fax machine is installed, benefit to the user starts instantly without affecting the content. The benefits of modern duplex communication are not just in terms of enhanced economic activity. They extend to enable people have better Medicare, to avoid unnecessary and hazardous travel, to enjoy better law and order, to improve administrative efficiency, to

bypass local officials by having a direct access to the higher ups etc. I always regret that our Planning Commission has never given any importance to the intangible benefits of investing in Telecom Network nor made any efforts to quantify it.

The Maharashtra Telecom circle installed telephones in rural Thane district in 1985-86; I sent a video team to two villages for a follow up study. In one village along the coast, they came in contact with a fisherman's cooperative harvesting shark fins; their main customers were Chinese restaurants in Bombay. Six months after the telephone was installed, our cameraman found that the village cooperative was in direct telephone contact with Singapore and Hong Kong, where they had now started exporting!

The other village had *paan* leaves plantations. When the video crew reached the village they found two small garlands; one around a Ganesh idol and the other around the classic black idol, the ITI handset. The ancient symbol of our P and T was working! The Chairman of the cooperative called it his lifeline. Earlier they would send gunny bags full of leaves to users on consignments in the absence of firm order. They were getting paid for only 70 percent; balance was less due to excess supply that rotted. At least that is what was told to them by the buyers. Now, they telephone and ask in advance about the quantity and price. That resulted in forty percent growth in earnings. Benefits like fewer trips to Bombay, better healthcare and improved social services were a bonus.

In a different sense one can also see a definite impact of reliable telecom service on our work culture. Inefficiency in Telephone network in the past offered an excellent excuse for every Indian Manager. One could get away with anything and break any promises. Time Management was not necessary. With the improved telecom network of today that excuse is fast vanishing. Today one gets a Fax and a few moments later the torturous telephone rings. 'When am I getting the reply?' the voice at the other end demands. We are definitely in for a cultural shock.

We today live in a dynamic world. The only thing that remains unchanged is continuous and sustained change. Unlike everything else the telecommunication products are also becoming progressively cheaper. They also are becoming smaller, smarter, prettier and portable, with mind boggling features. Life is changing. Expectations are changing. Relationships and their perceptions are changing. Demands are changing. Boundaries of permissivity and acceptability are growing. Telecommunication is also changing. Virtual reality is knocking the doors. Low orbit satellites are looming large in the sky. Fibre optics, higher frequency bands in Ku range, with their limitless bandwidths, digital compressions technique and a plethora of new technologies are waiting to be exploited. RFID and other new initiatives are in the pipeline. To venture into predicting about what will be its effect to us and our perceptions about right and wrong as also to our beliefs and fears is almost impossible. It is difficult to fathom the depth of cultural change that India may undergo. For doing this we may have to have an entirely new and innovative approach to the science of prediction. I can, therefore, sum up and say that just as today the change is the only certainty. Great cultural change due to ever expanding telecommunication is also an undisputable and unavoidable after-effect.

1997

(The author is the former Electronic Advisor to the Prime Minister. In 1994, the Broadcast Engineering Society of India awarded him their Fellowship. His book, 'The Third Parent' published in 1991, outlines a plan for the Growth and Development of the Electronics Media in India. He is a professional with no commercial interest in the Broadcasting business. The issues raised by the author in this article written in 1997 are still unresolved in 2006. There are many solutions in this paper that need a careful attention by the planners.)

NATIONAL BROADCASTING POLICY NEEDS RETHINKING

The 1997 Broadcasting Bill clearly indicates that its authors are not media planners but administrators. The bill is more about media policing than guiding it in a desired direction that would be beneficial to the country. It is clear that we do not yet have a well defined national policy nor a long term plan concerning Radio and Television Broadcasting in the country. Its deep influence on community and personal life and its global reach definitely needs its careful monitoring and thoughtful planning. Audio visual mass media has a special significance to a predominantly illiterate and multi-lingual country. It is a useful tool since it allows us to reach everyone with no filters like language or literacy. It is strange therefore that the bill concerns itself mainly with the regulatory aspects ignoring every other important aspect of the electronic media. It limits the role of the proposed Broadcasting Authority of India primarily as a licensing authority. It dwells more on who would not get a broadcast license rather than focussing on using the media as an Information Technology tool to a better informed country even in its hinterlands. It does not concern itself with technology and its forecasting nor does it talk of education and distance learning. It does not elaborate on what it means by 'public interest'. Many governments in Europe consider 'broadcasting' as a 'public service' for safeguarding the 'public interest'. Unfortunately, however, in India 'public interest' has often got

confused with the ‘Government Interest’. In spite of repeated protests, the Government has been using the antiquated and now irrelevant, Indian Telegraph Act of 1885 to perpetuate its monopoly over the ‘broadcasting’. The law originally enacted by the British to effectively rule over a captive nation should have been scrapped immediately after the independence. Instead it has been often used to guard the ‘Government Interest’. In fact, that is why the Supreme Court intervened in this matter in 1995, and ruled that “the broadcasting media should be under the control of the public as distinct from the Government”. It took 100 years for us to assert (so far only legally) that Airwaves belong to the people.

In the meantime, technology has progressed allowing foreign Electronic media uncontrolled access to Indian homes while, on the other hand, the private Indian media companies have to wait for the government to permit them that access. With the advent of Satellite Television in the 80’s, the geographical boundaries of a country became irrelevant in relation to Broadcasting. Rupert Murdoch’s Star TV and others had invaded the Indian subcontinent with Zee in Hindi, Star Plus in English etc. Now there are over hundred channels relayed by cable into five crore Indian homes. Enterprising young men, realizing the business opportunity, set up thousands of cable networks to deliver multi-channel Television into the living rooms of private homes. Uncontrolled growth of cable television proliferated for years as our Government continued to procrastinate. Satellite TV and unplanned cable network became a fait accompli. Ironically, while the government kept helplessly watching the collapse of its broadcasting monopoly, it unwittingly allowed foreign channels to grow while frustrating Indian companies seeking licenses for private broadcasting. Years of procrastination and delay has helped haphazard and unmonitored growth in the number of accessed channels and its cable distribution. What a tragedy indeed!

Eight years ago the Supreme Court, by its 1995 judgement, has directed the Central Government to “take immediate steps to

establish an independent autonomous public authority representing all sections and interests of the society, to control and regulate the use of the Airwaves”. It is a directive, which is quite unambiguous and suggests ‘immediate’ action. It is now eight years of inaction in responding to SC directive ‘immediately’. 1997 Bill indeed was nothing more than its reaction to the announcement of ‘Direct-to-Home’ multi-channel television service by a foreign media company, than its desire to comply with the Supreme Court’s directive. Authors of the proposal seem to have some un-stated objective. Let us realize that Foreign Media owners have intense interest in India.

Parliament needs to provide an appropriate and comprehensive legal framework for media growth in the direction country wants. Such a framework would have enabled the country to exploit the potential of Electronic Media to benefit the people as well as avoid its misuse for social exploitation or other partisan gains. The proposal fails to address media related strengths and weakness of the country and suggest ways to avoid threats and also reap the benefits. It fails to address the problem of containing the profound life-style changes and the growing influence of the western culture of consumerism aided by electronic media.

We need to do certain things on a priority.

- a. Reduce the impact of foreign media by promoting private, local language Indian television, revamping ‘Prasar Bharati’ for more imaginative public broadcasting and liberally licensing private Indian broadcasters.
- b. Prevent creation of monopolies by allowing religious thoughts from every religion and not restricting any political thought ranging from socialism to swadeshi.
- c. Trust private Indian broadcasters that they would also guard the ‘public interest’ as much as Doordarshan and AIR does. They are as ‘Indian’ as the Government owned media. We are in a free country and our people too care for our culture as much as the government. What we need is a clearly worded

code of conduct and ethical standards, both for programming and advertising from the Broadcasting Authority of India, BAI.

In a largely illiterate country like ours, the very first thought of anyone responsible for guarding the ‘public interest’ is to effectively use the extra-ordinary ability of the electronic media to deliver all kinds of information and education directly into private homes to achieve cultural integration and reduce social heterogeneity. The first priority therefore would be to allow Universities, School boards, Industry associations and genuine Public Service Organizations to use the Broadcast Media as freely as possible; in fact, enthusiastically promote it. How can any policy be worth even a second look when it misses the very basic step in guarding the ‘public interest’?

There is one more point as to why the Government so far has failed to effectively use the media for education. Television media is for communicators and not for teachers. Educational Television, under the Government’s bureaucratic control, has greatly suffered because it has overlooked this basic truth.

The 1997 policy proposed to create the Broadcasting Authority of India—BAI. Interestingly the Ministry has set boundaries to the so called ‘independent’ BAI and put it in an ironclad framework. Thus poor BAI can operate only within the role prescribed by the government and is left without any real authority or scope to apply its own mind. This ‘BAI’, if ever formed, will therefore deliver only disappointment. Look at how TRAI is made powerless by putting it in a straight jacket created by the Ministry and are getting it endorsed by the parliament.

The Government will do well if it first creates the Broadcast Authority of India headed by an eminent media expert with two media professionals as its members and then ask them to structure a policy. Administrators of the ministry can’t do justice to such a task. One would need experts with deep insight into the issues

related to the medium and the message. BAI could then submit a draft Policy Document to be put before the parliament for approval. The authors of present Bill do not seem to comprehend what is involved.

One of the worst fears regarding the guardians of ‘public interest’ and ‘democratic values’ is the misuse of media for propaganda, blatant or latent. Therefore an appropriate name for Doordarshan and All India Radio, after giving this Public Broadcaster its true autonomy, will be ‘*Samskar Bharati*’ and that is what it should do. ‘*Prasar*’ somehow stinks.

It appears that the Central government believes that only it could be the Public Broadcaster. Why not a state government or an autonomous state-level organization created by it? Why can’t a private charitable trust become a Public Broadcaster? What is the definition of a Public Broadcaster? It is surprising that no state government in India has protested against monopolization of the Electronic Media by the Central Government or the related constitutional provisions. It is ironical that the apex court’s landmark decision on the Airways came as a result of a dispute concerning commercial rights to broadcast a cricket match and not because of those who need to use the media for faster progress.

‘*Prasar Bharati*’, as it appears in the 1990 Act, is too Delhi-centric. To make it more effective, it should be split into regionally autonomous units and its creative work should be left in the hands of regional media professionals. Technologically and administratively it is easily feasible.

The government repealed the ‘Cable Television Networks Act’ promulgated two years back, but what it replaced it with is not any better. It does not touch the following important associated issues:

- a. Protecting Consumer’s right to receive programme that are of good technical quality has to be an important purpose of this law. It should set minimum standards for the signal being

delivered to homes. These parameters are easily definable and measurable and therefore would help consumers to protect themselves from cable distribution monopolies in his area.

- b. It fails to differentiate between Cable Operators who merely operate as a conduit of several Television programmes and those who also carry cable programmes generated by them. Such activity of delivering privately generated programmes via cable not only needs to be regulated but also encouraged. In any case, such cable operators need to be licensed as 'local' broadcasters and treated accordingly to follow a prescribed code.
- c. Receiving satellite and terrestrial Television signals and packaging them on a common carrier is an expensive and complex technology and further transporting these signals over a cable grid is even more difficult and technologically challenging job. Over a billion-dollar industry in the US, thrives just to ensure that the quality and standards of programmes delivered to subscribers are met. Restricting cable licensing only to those serving less than 5000 households will be unjust to the Indian subscribers since the small operators simply will not have technical or financial resources to do a good job. This needs to be done by organized cable distribution organizations. Any public inquiry will reveal that the bulk program distributors have helped small cable operators to bring some order in the chaotic cable TV scene. The consumers have been largely benefited with a better quality service.

The best consumer protection will come from de-licensing and liberalization especially since, due to the DTH technology; the government will have no control over what private homes can access. We can however strictly control the mass distribution of all such channels or specific programs by legally restricting the licensed operators from distributing banned channels/ programs via cable or wireless links. Preventing media monopolies in

broadcasting is best achieved by restricting licenses to domestic, private or public agencies and the rest will be taken care of through competition. An exception could be made to accommodate special interest broadcasters like National Geographic, Discovery etc. It is also possible to carefully ensure that no open or covert monopolies are created. Direct or indirect ownership of the media by the foreigners however needs to be strictly controlled. There is absolutely no need to allow as high as 49% shareholding in Electronic Media. The investments as well as the technology in setting up a Television or Radio channel are not very high even in the case of satellite delivery. Indians have enough resources to invest.

Similarly it is true for state governments too and they should be licensed to have local language broadcasting especially since these are constituted on linguistic principles. Why shouldn't a state government have a direct communication link between its administration and the people? Why should there not be live transmission of state assembly proceedings?

The Government has always failed to recognize who says what, how, to whom, for what purpose and to what effect. It is very important and the best ammunition to fight against the foreign invasion of Indian airspace. Its exploitation by the multinationals to change our world lies in quick and effective promotion of local language local television. Majority of the Indians will never tune into foreign programs if there is a local language terrestrial television that is as attractive as some of our Indian private channels on satellite. Providing more attractive alternative is a better way to deal with licensed or unlicensed foreign channels rather than merely policing the cable operators and put the guilty ones five years in jail, as recommended in the 97 policy.

To almost any Indian, Indian owned satellite channels or cable channels are as Indian as Doordarshan. All broadcasters would voluntarily follow well-evolved code of conduct and remain within specified ethical standards created by them with an approval by

the BAI. What we are missing are the local TV channels in our own mother tongue; one that deals with local issues and one that grills local political bosses and social queers, a la '*Aap ki Adalat*'. When such channels are freely licensed, no one needs to bother about the foreign channels. In any case language is good barrier in communication.

Advances in communications and computer technology are rapid and mind boggling. No broadcast monitor can close eyes to these. BAI has to be predictive and watchful. Integration of the Broadcast and Telecom technologies into multimedia networked computing will soon personalize the broadcasting and make it interactive.

2005

(Impact of current Television Programs delivered by over hundred channels into private living rooms on young children is the matter of a great concern for almost all parents in the country. Those in authority however seem to be overawed by the noises the elite make about the media freedom. Consequently there is no regulatory mechanism to discipline the broadcasters. Very few however are aware that in the US, the country that our elite ape, there are prevalent laws to make the broadcasters accountable for what they dish out. Author pleads that this should give courage to our Government to enact similar laws to protect children in our country.)

DO WE NEED A CHILDREN'S TELEVISION ACT?

If USA has a powerful one; why not India?

It is now universally acknowledged that television has the most profound influence on the nation's young people. Several formal studies by renowned social scientists have proven the culture-changing effects of the Television. The aggregate flow of reiterated formats used by television 'cultivates' the social environment almost like farming cultivates the natural environment. We see glimpses of this in our own homes today when tiny tots, even before they learn to string a sentence, sing commercial jingles. What an immense power indeed! Dr. Goodlad, in his book, 'A Place Called School' points out that over a period between 1960 and 1980, television moved from eighth place to third place in terms of influencing youth aged 13 to 19 years. In 1980, the average American child was watching TV for over two hours in a day. Figures in India, as we all know, are identical or worse. Indian parents and especially the women have always been voicing their concern but media freedom has overwhelmed any movement to harness this force for more meaningful programs for our children. The successive governments at the centre have also made no move to discipline the media. Can something be done?

It may be of interest to Indian parents that in a liberal country like the US, the US Government, through FCC, has set rules for Children's Television forcing their TV Industry to comply. Children's Television Act (CTA) was first enacted by the US Congress in 1990 in response to the failure of the broadcast television industry to serve the educational and informational needs of children. The US Network programs for children were then thinly disguised commercials for action toys and other products. The sharks of the US TV industry influenced FCC bureaucrats to craft rules that significantly weakened CTA's effectiveness. Some channels claimed that their afternoon talk shows were serving educational needs! Many educational programs were often scheduled in pre-dawn time slots when few people were likely to be watching.

In 1996, with the support of President Clinton, CTA was strengthened with new rules created by the FCC. The new rules clearly stated how broadcasters are expected to comply with the Children's Television Act, covering the definition of educational programming, the minimum amount of such programming required each week, on- and off-air labelling of educational children's programs, and new mechanisms for public accountability. The educational programming was defined as "any television programming that furthers the educational and informational needs of children 16 years and under in any respect, including children's intellectual/cognitive or social/emotional needs". The current rules require TV channels to air core educational programming which have a significant purpose of educating children below 16 years of age and must have a clearly stated written educational objective, have a target age group as the intended audience, should be regularly scheduled for at least 30 minutes duration; and be broadcast between the hours of 7:00 AM and 10:00 PM. The FCC also quantified the amount of programming that channels must provide to comply with the law. TV channels that desire automatic renewal of their licenses are required to broadcast a minimum of three hours of core educational

programming each week. CTA made FCC create a forum in which concerned citizens can help shape the media environment that literally pervades the culture. Armed with an understanding of what the new rules require, and provided with an opportunity to make their voices heard, parents and others are enabled to make a real difference in the kind of programming that is available to children on broadcast television.

In 1992, during the process of Metro Channel privatization, the author, as the Chairman of committee appointed by the I&B Ministry for the purpose, had made specific recommendations for reserving airtime for children's program and defined a specific code of conduct and the ethical standards. Needless to say that these were ignored by the bureaucrats of the Ministry and the entire committee resigned in disgust. We might have failed then but the issue remains unresolved. Today, with the plethora of television channels piped into our homes, concern of the people is even more.

Children Television Act of 1996 could be a model for us to adopt. Those media elite, who often ape the US in its liberated media dream, will then have little to argue and object. CTA has many provisions that we too need in India. CTA demands that channels must provide "on-air identification" of their educational children's programs, which should help viewers recognize and look for educational children's programs. In addition, broadcasters are required to provide program listings in press such as TV Guide, with information about their children's educational programs. FCC, the regulator, has also created new mechanisms for public accountability: These provide more information to parents about how they can get involved in making the law more effective. Towards this end the FCC requires channels to place in its "public file" a completed Children's Educational/Informational Television Report to reflect the channel's efforts in the preceding quarter as well as efforts planned for the next quarter to serve the educational and informational needs of children. The Reports must be filed by the 10th day of the succeeding quarter. The objectives and

target audience of the children's programs are also to be specified in the report. Channels must publicize "in an appropriate manner" the existence and location of these Children's Educational/Informational Television Reports. To make it easier for the public to obtain information from the TV Channel about its educational children's programming, the rules also require all channels to designate an individual on staff to be the "children's liaison" with the community. This person should be available to explain the information in the "public files", to discuss how the channel is meeting the requirements of the CTA, and to receive feedback from the public. Interestingly, the FCC has also made it very clear that community members are expected to evaluate the educational merits of these programs and to offer their feedback, not only to the television channels but to the FCC as well.

Those who govern predominantly illiterate or semiliterate India, that is Bharat, and their culturally proactive brigades may please note what the democratic USA, in spite of its deep concern for the freedom of speech, has done to save its children from the irresponsible acts of their private or public broadcasters and discipline them through this act. Is it not the time that we have our own Children's Television Act?

1999

(Electronic Media reaches almost everyone in India. Television and Radio reaches every nook and corner of the country including the deep hinterland.. Information delivered needs no skill for anyone to understand and every illiterate adult or uneducated child can understand the content so long as it is in a language one knows. In a predominantly illiterate country like India, Media can therefore be gainfully used to create a well informed society overcoming handicaps like lack of reading skills. The Author has been deeply involved in promoting this cause since the last two decades.)

TAKING BHARAT IN THE INFORMATION AGE

It is feared that, in this Knowledge Age, we might end up widening the deep valley between the urban elite of India and the praja of Bharat. The praja, in addition to being economically disadvantaged, is increasingly becoming information starved. In spite of the telecom revolution in the country and in spite of the rapid proliferation of television channels, the kind of information that would benefit masses is not being disseminated. Education has to be of the people, by the people and for the people. There is therefore a need to harness currently available media technologies for enriching the rural people with appropriate information. If we don't, it will progressively hurt gainful employment, improvements in their productivity, their work efficiency and even well-being. These powerful Information Technology tools have to become more Bharat-centric than 'West'-centric, Internet access and databases must be in local languages. Media companies should exploit Radio, Television and the Internet more imaginatively. Unlike what is commonly believed all activity is indeed commercially very rewarding. Bharat is a far bigger market than urban India. Educating Bharat is in the interest of business. An informed Bharat would become India's greatest strength and an asset in the global market place. China has already proved this. If we ignore this reality, there is a great danger that we, as a nation,

may be left behind and would fail to keep in step with the fast pace of global economic development. Let us not forget that the much better information equipped Chinese are already way ahead of us in the global race.

THE CHALLENGE OF INFORMING THE INFO-POOR:

Even today, creating an information rich Indian society, spread out in rural and semi-urban regions of the country, is indeed a challenge to our collective wisdom. It is a challenge especially since the deprived people are not conscious of their deprivation. The rural population in Bharat is predominantly illiterate but it is also generally not bothered about being so. As adults they earn their livelihood, raise families and locally acquire enough cultural and social education to endure poverty and not miss being uninformed. Generally they show little enthusiasm to learn and forge ahead in life. Their information database is restricted to what comes from the family, religious discourses, programs on All India Radio and Doordarshan via community television sets and hearsay from local social, cultural and political leaders. Unfortunately the local leadership itself, in spite of being street smart, is also poorly equipped in their knowledge base. Rural Praja has learnt to live with poverty and deprivation. They tolerate poor quality of public services, endure injustice and bureaucratic high-handedness and paradoxically are brought up through religious training that helps them to be happy even in their appalling surroundings. This has been the case throughout the history of India and that is why we have seen no revolution in a fatalistic country. A slow pace of development doesn't agitate them since they do not know what they deserve. Thus they don't recognize that lack of information is hurting the quality of their work, their productivity, their efficiency, their earning power, their employment and their personal and community health.

The surest, the quickest and the most economical way to get over this serious inadequacy is to use existing IT tools more aggressively and innovatively to reach them and get them to learn desired life skills that would enrich them in every way while retaining their

environmentally friendly life-style. Since the target group is unaware or reluctant, the best marketing skills have to be used like those used by businesses for selling consumer goods. If America can use the media to sell their lifestyle, why not we to create our own informed society by providing the right inputs?

The process of informing the illiterate rural masses, therefore, involves innovatively creating the audio, video and multimedia software and the databases in local languages and also develops technologies to enable easy access to delivered information even for the unskilled and the illiterate. Further, it is essential to attractively package the right information using our best creative talents and deliver it via talented communicators who can attract rural adults to tune in the Radio or select Television Channels delivering such programs. We also need to ensure that we deploy communicators instead of teachers.

WHY RADIO AND TELEVISION?:

The computers and the internet have mesmerized the world around us. No doubt, these two form the most important tools for the information dissemination. But there are several reasons why the Radio and Television, if used more imaginatively, are far more appropriate, cost effective and widely available IT tools for the task on hand, especially for a multilingual and predominantly illiterate country like ours. Let us list these.

1. Demands no skills from learners, including literacy, while learning.
2. No new investments are necessary, essential infrastructure exists.
3. Extremely powerful and field proven for audio-visual communication.
4. Local language talents for developing software are available in plenty.
5. Delivery channels and field maintenance infrastructure is well established.
6. More suitable for creating mass awareness and learning social

and survival skills.

7. Ideal for functional local language literacy campaign amongst masses.
8. Commercially viable since it is easy to get sponsorship and advertising support.

Taking computers, information kiosks and Internet to non-urban areas for community use can follow later on, as knowledge levels grow over a period of time and prices of these goodies drop, technology matures and support infrastructure reaches even the hinterland.

One should not forget that the green revolution in the sixties would not have succeeded without the Radio, without *Aamchi Maati*, *Aamchi Manse* and similar evening broadcasts addressing our farmers in their own languages. Nor would there have been a change in political fortunes of some without Ramayan, Mahabharat and Chanakya telecast on Doordarshan during the 80s.

RESOURCE MOBILIZATION – Commercial Viability:

The broadcast radio and television scene has undergone a dramatic change during the decade. The single channel monopoly has ended. The available airtime has increased enormously and since there is more supply than demand, its cost has dropped to a very large extent. Satellite and related technologies like data compression has helped reduce costs further. This has made it possible to cost effectively manage Television Channels catering to special interest groups.

Secondly reduced costs of broadcasting have correspondingly reduced channel's dependence on broad-based advertising addressing the masses. The advertisers today support programs that attract the target viewership they are interested in. For instance, businesses making products for household interiors will want to advertise programs created to impart related skills since viewers are their potential customers. Every craftsman and tradesman uses commercial products and tools such as paints, wood, laminates,

glues, hardware, fasteners, electrical and plumbing accessories etc. So someone was to start a specialty channel called 'Skills', it can be a commercially viable proposition. Such a channel will help us as a country in developing good work culture and improve quality of workmanship of our craftsmen. It would be the most effective way to educate even semiliterate artisans, upgrading their skills, improving work culture and attitudes. It would add to their self-esteem. Interestingly, for this to be achieved, lack of literacy is indeed no barrier to their learning.

Look at industries making products used by plumbers, carpenters, electricians, painters, auto mechanics, technicians repairing home appliances, tailors or those employed in service industries like salesmen, waiters in restaurants, clerks, telephone operators and even construction workers or street-side vendors. Such industries would want to sponsor and even give expert inputs to train actual users of their products. Sponsoring such programs promises them better utilization of their products, better end user service and brand building amongst their 'real' clients.

We often wonder why Indians are such poor performers in competitive sports and rarely involved in pursuing participative adventures one encounters even in China. Our interest in sports or fine arts ends up in us being ringside viewers. Won't art material manufacturers benefit if they teach using watercolours, oil paints or textile paints through an audio-visual guidance on a television channel? As a manufacturer of mountain climbing accessories wouldn't one be interested not in just sponsoring but also help developing such skills?.

There are opportunities even in formal education in form of serialized skill development programs in a focused segment.

TELEVISION DIPLOMA IN OFFICE WORK:

Let us take just one example where our failure in performance hurts our productivity, our reputation and our image as efficient and responsive offices. This primarily happens due to the lack of

formal training of workforce in offices. There are no courses to formally train even graduates in office work. Everyone ends up learning the desired skills by the trial and error. Isn't it possible for a television channel to start a diploma course in Office Work? May be a two hundred episode audio-visual training package that prepares the viewer to learn the essential skills to become an efficient and well behaved office assistant?. One needs to learn the skills like receiving or making phone calls, learn about operation and maintenance of office appliances like the fax machines, paper copiers, calculators, familiarize with office procedures like filing systems, cultivate the right ways to deal with visitors, colleagues, superiors. One also needs to learn about proper attire on the job, dressing for an occasion, write appropriate letters, memos etc. A TV Channel Diploma in Office Work will be a winner since it has a value. If one is seeking a job, won't prospective employers recognize such a TV Diploma even if it's from a TV Broadcaster? Besides developing our human resources, such course will put a feather in the cap of the channel that does it. It is a social service. The interesting part is that this exercise will be commercially very rewarding. It could be more profitable than many stupid serials that do more harm than good.

The orientation course, on a similar line, could be developed for young girls in their teens and prepare them to conduct their lives safely and productively. Our womenfolk have to be prepared to ensure that they are not exploited and ill treated like they are today and equip them with right information to turn even the illiterate amongst them into bold and efficient family managers. It would be a sort of a finishing course but without foolishly and blindly pushing them to take to western culture. Do we not have enough 'phoney pretenders' in south Mumbai, south Delhi and south Kolkata?.

TWO QUICK STEPS TO PROMOTION OF LITERACY VIA TELEVISION:

Entire knowledge one needs to conduct oneself efficiently and safely is all stored in written text. Any form of formal or self-

learning therefore needs reading and writing skills. Lack of it hurts learning capability and therefore progress, productivity, efficiency and self-care of an individual. Literacy is a vital skill for personal advances in life. Every adult, including those without literacy skill, understands one's mother tongue as a spoken language. So reading written text involves knowing symbols constituting the alphabets – the shapes of the sounds!

STEP ONE IS LEARNING ALPHABETS.:

Devanagari is the script of phonetic languages like Marathi & Hindi. In short, the spoken and written word in these languages is exactly alike. Devanagari Script has 40 main alphabets of which 28 are consonants and 12 are vowels. Each consonant is indeed a picture of a specific sound. Therefore once a non-literate learns and memorizes pictures of these 28 consonants and their combination with the twelve vowels, he or she can read elementary text. Media companies can use creative media talents to produce 10 or 20-Second Spots, one for each alphabet. These should be like advertisement spots shown during popular programs on various Television Channels to sell merchandise. Creative media brains can create such '*Akshara Spots*', like those used to effectively sell soaps, and help the task of imbibing in the minds of the viewers shapes of characters representing sounds of these 28 consonants and 12 vowels that constitute Marathi and Hindi written text. These 'AKSHARA' spots should be regularly and repeatedly telecast, strategically intermingled with popular television programs on television channels, especially religious discourses, mythological serials and other programs that attract illiterate viewers. This would be their first step towards functional literacy.

STEP TWO WOULD BE TO START FORMAL LITERACY CLASSES ON TELEVISION:

This can be conducted by personalities like Madhuri Dixit or Nana Patekar or someone who would attract a large number of illiterate adults to the television screen. We should turn this into a movement

by encouraging local literacy clubs to be formed at rural and urban level by local volunteers. They would use these telecasts to gather the local population to watch and offer local help and guidance.

2003

(The author had filed a public interest litigation to highlight the inadequacies in deciding TRP and its manipulation. The current systems are detrimental to the interest of Prasar Bharati. He had sought honourable court's help to direct the Government to establish an Independent Autonomous Bureau for Viewership Study of the Electronic Media)

AUTONOMOUS BUREAU FOR THE ELECTRONIC MEDIA SOCIAL MONITORING OF ELECTRONIC MEDIA PROGRAMS & RATING THEM FOR COMMERCIAL USE

WHAT IS WRONG WITH THE CURRENT TRP RATINGS?

Today there are over hundred channels of Television beamed to India in addition to those of Prasar Bharati. Only Prasar Bharati programs are re-distributed through over one thousand terrestrial transmitters where as all others are purely cable channels. As a result, Prasar Bharati Programs reach all 86 million homes whereas Cable Channels reach close to 46 million homes.

Over four and a half thousand crores of revenue was generated by the Electronic Media in India in 2002 and most of it was mopped up by the various private channels and mere 20% of it is received by the Prasar Bharati. This is indeed completely improbably if one considers the following:

1. It is significant to note that Prasar Bharati (Doordarshan) reaches 86 million homes, thanks to over 1000 Lower Power Transmitters installed by the Government all over the country during the 80s. All other private channels delivered by cable reach only 46 million homes.
2. It is to be noted that Prasar Bharati is accessible in all 86 million homes and has a *captive* access to 40 million homes. As against this, the cable homes have a choice of over 100 channels to view including the Prasar Bharati.

3. Thus the reach of the private satellite channels is merely 46 million homes and each one of the 100 channels is competing for the eyeballs in these homes.
4. Further, in case of Prasar Bharati, viewers per home in its 40 million captive homes located mostly in rural areas are twice the average number of viewers in Cable Homes.
5. Prasar Bharati transmits programs in over 20 languages unlike the private channels that predominantly transmit programs in Hindi and English.

Consequently, Doordarshan potentially reaches five times the number of viewers than all the private channels put together. If you take one private channel and compare its viewer's engagement chance to that of Prasar Bharati, it becomes glaringly clear that Prasar Bharati has to have substantially larger viewer-ship than any private channel. However, despite this, Prasar Bharati is losing the ad-revenue day by day. The question then is how some of the private channels manage to attract four times the advertiser's money than Prasar Bharati. This is indicative of probable manipulation of TRP Ratings. My concern grew a great deal when both INTAM (Indian Television Audience Measurement) and TAM (Television Audience Measurement), the two private audience measuring agencies on whose rating the advertisers depend while choosing the media, failed to answer the questions, I raised to them in spite of repeated telephonic reminders. That fear was proven in September 2001, when CNBC India exposed this trade of TRPs. The same was widely reported in the various newspapers. By the revelations made by CNBC India, it was established that Television People Meter in India employed by these agencies were not full proof or confidential and were easily open to manipulation. In fact CNBC had a full list of 627 households supplied with the People Meter that has sought to make up the sample homes used by the said two agencies to calculate the TRPs in the city of Mumbai.

This clear manipulation of the TRP Rating by the private Television

channels by conniving with the private Audience Measurement Agencies is leading to tremendous loss of revenue to the Government of India in general and Prasar Bharati in particular. Study of the present topology for Audience Research and present system of assessing media viewer-ship through TRP Ratings, certain disturbing and serious deficiencies have been noticed and regretfully the Government is not responsive so far in the matter.

It is therefore necessary in public interest, trade and business of issuing Television Rating Points (TRPs) which controls and governs the entire multi-crore electronic media (Television) and the advertising business. The adverting on the television itself is about Rs. 4,600 crores and this money should be adequately and properly governed through a transparent legal framework.

Doordarshan is a National Public Broadcaster. It is the terrestrial broadcaster having maximum reach to all the Television homes in the country. Besides this, there are number of private Satellite Channels which are available for viewing on the Television as of today. In view of higher and higher number of options becoming available to the viewer, the correct and authentic viewer-ship in relation to a particular channel and also a particular program is obviously getting increasingly fragmented. There is, therefore, a pressing need for assessing correctly the popularity of any given program and/or channel so as to enable the advertiser as well as the general public to know about the correct position in relation thereto. Advertisers plan their advertisement budget based upon the individual popularity of the program and channel, actual, authentic and dependable information whereof is in fact not available to such advertisers.

Today, in case of the print media, there is an established organisation viz. Audit Bureau of Circulation that provides authentic data in relation to print media. In case of Electronic Media it is missing. At the present moment no agency like press council exists that can release authentic data relating to the viewer-ship of various channels.

VIEWERSHIP RESEARCH IS NECESSARY TO ASSESS THE MEDIA IMPACT ON SOCIETY

Viewership Research for a predominantly illiterate country like India is needed for a far more important reason than for the benefit of advertising trade. We need a data base to write media policies of a country like India. We have to make much larger investment in Viewership Measurement Infrastructure, enabling it to support larger and acceptable level of sampling of viewer preferences in terms of its socio-economic spread as well as effective coverage of urban/rural, male/female, young/old sections of our society. It is clear that for a Media Policy planner for the Government, TRP Rating would have a lot more meaning and use than that for the advertising industry. It helps, understand with greater accuracy what is happening to various sections of our community due to proliferation of media channels. It brings clarity in understanding of the social, socio-economic and socio-political impact of the Electronic Media on the masses and its impact on the value systems and the lifestyle. There can be nothing more valuable to a planner and hence this has to form the basis for media policies in future.

It is clear that the Government has somehow failed to pursue an earlier initiative it had taken in 1998. At that time Prasar Bharati and Private Satellite Channels had taken a decision towards jointly setting up a common Television Viewership Rating system in the country. During that period, meetings were held between Doordarshan Officials headed by the Chief of Prasar Bharati and representatives of Television channels at Mandi House and it was decided to jointly work out the modalities for switching on to system for generation of TRPs which was transparent, independent and dependable. The objective of such meetings was to establish “common currency” for all television channels which is acceptable to the advertisers and marketing companies. There was unanimity at the meeting about ensuring that any rating provider is not controlled in any manner by any advertiser or marketing agency or the Government so as to guard against vested interest. It was agreed to take steps to ensure that the rating system is credible,

representative and professional.

There has been a continuous depletion of funds generated by way of advertisement revenue on the electronic media by Doordarshan. On the other hand, the advertisement revenue generated by the satellite channel has been on the increasing trend ever since and there is a vivid war inter-se between the satellite channels to outwit the other. This proves that there is substantial scope of revenue generation in the trade of media.

This situation certainly demands a policy initiative in this regard. The Government ought to take the initiative and create an independent, autonomous bureau with a wide representation to carry out such research. Such an Organisation could come out as a National Fund to which all the media companies including the Prasar Bharati could contribute and share the cost.

1993

(Even today, in spite of a wide variety of channels being telecast in very large numbers, the content rarely focuses on local urban and semi-urban issues dear to local citizens. The nearest to this concept are local cable channels but they too remain restricted to homes they serve. In a district like Thane, near Mumbai, the author desired to promote publicly supported broadcast channels that the rural areas of Thane District can receive. With ever lowering cost of Electronic Hardware, establishing a 100W Television Transmitter and an associated small studio is not an expensive project any more. The concept can still work, especially if the Government of India makes it easy to privately set up such a local TV Vahini as a co-operative venture.)

SAMVAD VAHINI, THANE— A CONCEPT FOR A CITY CHANNEL THAT CAN WORK

BACKGROUND:

Television addiction has grown into a wild fire and has engulfed Indian households. Thane is no exception. Everyone, from *grandpa* to a two year old tiny tot, is addicted to it. The rapid and inevitable growth of cable Television has aided this further. Cable Operators today deliver not only satellite channels but also add their own to that cocktail. Strangely television has added comforts into our living rooms and bedrooms. The arguments have died. *Dads* don't fight *Moms* any more, nor do *Granddads* argue with *dads* about family decisions. The colourful range of entertainment and infotainment has done it. Cable television has captivated our society. This glamorous visitor in our homes has now become its permanent paying guest (whom the host pays!).

Proliferation of television channels is going to continue. Comfortable and effortless access to TV has already changed the pattern of our life at home. Many students watch television for longer hours than what they spend in their class rooms. This has been worrying some parents. In fact, there are more reasons for

one to worry about. It is not the medium but powerful messages that television delivers that matter. Parental concern is about its social and cultural impact but they can do little but to worry.

WHY A PRIVATE TV STATION FOR THANE?:

After extensive research spread over 20 years it is proven that its enormously powerful and hypnotic entertainment and aggregate flow of reiterative formulae ‘cultivates’ the social environment almost as farming cultivates the natural environment. It fertilizes and nurtures minds. Can this be used as our own tool to bring more harmony and mutual understanding and be of mutual help in a city like, say, Thane? Television is called by some social scientists as a cultural melting pot. Thane district, in a sense, mirrors India. It not only has its share of urban elite and the middle class but it also has the blue collar working class and equally large population of rural community that includes adivasis. Half of Thane district lacks functional literacy. TV medium needs no skill or literacy to learn from. This media should therefore be communicator’s delight. It’s mass communication in a true sense. Our Thane is therefore a good model for media research on Indian masses.

While we think of impact of television programmes on the society, we should remember that basically, it is the message that matters. The key is to find out ‘who says what, how, to whom, with what effect and for what purpose’. It all depends on the interest and the attitude of the media owner and the advertiser who funds programmes. Television is like a knife, it can heal when in a surgeon’s hand on the other hand it can kill when in the hands of a devil. Should we, as Thanekars, not have our own wireless channel that can be seen even in the hinterland? Should we not act than merely watch helplessly as the newer channels keep hitting our homes offering tantalizing but trivial images created by experts in manufacturing spectacular fantasies and violence? Here I present a proposal to set up Thane’s own ‘Samvad’ Channel to be called ‘Samvad’; our own private TV station owned and operated by the people of Thane.

“SAMVAD”, A CITY TV STATION BY AND FOR THANEITES:

In the U.S., where media is free and privatized, there are innumerable private local television stations. They are commercial and quite often very popular and well patronized. A study has shown that local Television in the US is often more popular and enjoys considerable more viewers than even their national channels like CBS, NBC etc.

I believe that, if managed imaginatively and sensitively, local Television will also succeed in India. Setting up a 100W LPT on the top of the Yeeor Hills will cost no more than 30 lakhs. This can be done without any investment by the Government and thus save it from bureaucrats. We can find money from our people and our industry. SAMVAD Channel at Thane, when and if it becomes a reality, will be the first private television channel in the country be owned and managed by the people of the region. There are various reasons why SAMVAD will become a popular channel. At first, it will be in Marathi, a language spoken by the majority and all natives of Thane. It will carry local images, debate local issues and will provide local information that matters in our daily lives. If these programmes are well produced, viewers would flock around it. With a large viewer patronage, SAMVAD Channel will become an attractive low cost medium for prospective advertisers.

PROGRAMMING:

There is a wrong belief that informative and educational programs have to be boring. This impression is strengthened due to the hopeless unimaginative approach of the government in Delhi to educational TV. Television is a medium for communicator and not a teacher, unless he is also one. To entice viewers and keep attention is a skill and if those who possess it are enthused to produce such programs, they will be educating viewers as attractively as they would entertain.

There is also a wrong belief that making programmes for

Television is expensive. This is not strictly true. It is true that more money can embellish the visual better but the core is not always expensive. An exciting talk show will cost very little as compared to a costume drama shot outdoors. Programme that captures city visuals and highlights its paradoxes, tragedies and comedies may not cost very much but it can be as captivating as a good TV drama. All such programs will certainly attract adverts. Tenth standard tuitions in mathematics, if conducted by an expert teacher communicator will achieve extensive but a select set of viewers. There would be enough advertisers who have a message for these youthful 10th standard clients. If the Police Commissioner, the Municipal Commissioner, or the District Collector is interviewed on SAMVAD by a witty interviewer comparable to Rajat Sharma, it can inform, educate and entertain. All such programs, indeed, require more imagination and intensity of purpose than money.

There is a scope even to conduct commercially viable courses to develop personality and equip young men and women to be winners. For instance, a diploma course could be started for young women in home science. It can not only educate and inform them on a wide variety of subjects from home management, childcare, and self-care, art of communication etc. but also inform about social psychology and the art of fending themselves from dangers in public life. Put a few simple questions at the end of program and those who send in answers on postcards for, say, 80% of the episodes be given a glossy diploma.

Another one could be for young men, to turn them into efficient office workers. They could be efficiently coached on how to talk on the telephone, receive and take messages, how to deal with bosses, communicate with visitors and so on. They could also be educated on filing systems, information storage and methods to have quick access to it, etc. They could be demonstrated use and maintenance of copiers, fax machines, personal Computers and could even be guided to be proficient in spoken English. Diploma at the end can get them a job.

Samvad Channel can promote and groom local talents. It will enable budding artists in fine arts to take the first step towards popularity and public acceptance. Samvad Channel can teach youngsters how to draw, how to paint, how to dance. It can inform and educate senior adults on how to live safely with blood pressure, diabetes and a host of other degenerative diseases and ailments.

Teachers teach; a communicator shares. Leo Buscaglia, in his book 'Living, Loving and Learning', says "I don't teach in this class, I learn in it. We get together on a great big rug and sit down and rap for two hours".

We can use SAMVAD to enable Thaneites to become fully functional persons. It can be effectively used to knit society and make it well informed. Thus in a whole SAMVAD will not only improve the city, but also help people to be co-operative, smart and efficient.

Three

**Human Capital
will always Prevail**

1996

(The author has been the President of All India Council for Educational Technology, New Delhi for four years in mid 90s. This article is a part of his Presidential Address during the annual AICET Meet in Thiruanantpuram in December 1995)

CONCEPT OF EDUCATION

Plato in his 'Republic' had emphatically denounced the concept of education as "inserting into the mind, knowledge that was not there before – as if putting sight into blind men's eyes". He defines education as the business of helping each citizen to develop innate powers of vision by turning in the right direction towards the light. Surprisingly, this wisdom coming from Plato as well as, later on from scores of other thinkers, philosophers and sages from every part of the world, has rarely been actually practiced. Today we often expect Primary education to be concerned with exploration, understanding and delight and yet, in delivery, it is almost entirely of regimental nature. Primary education is just a means of drilling people to conform to societal requirements.

It is therefore, no wonder that Education Technology has broadly remained confined as an academic activity or a fond dream of a few educators and scholars. One of the gains however is that the beginning of this decade has started a period of doubt about the contribution of traditional education to the society in general and the individual in particular. But traditionalists still continue to hold enormous sway.

The foundation of traditional education is the 'lecture'. Lecturing is "the chief normal means of instruction". Dictating notes is another variation. Both of these stimulate passive attitude and prevent proper intellectual exercise. One often talks of interactivity but teachers are rarely questioned, their audience being too polite or shy or submissive and afraid to comment. As a consequence quality of teaching does not generally improve because of the

lack of feedback. Many adults consider unquestioned lecturing as their privileged authority with a power to impose obedience on youngsters. School or college teachers cannot be an exception.

I, however, do not wish to demean our teachers and academicians. Some of them are excellent communicators and motivators who share their knowledge in abundance & continuously study and learn so that they can give more. My Guru has said that one cannot communicate from a pedestal. To communicate with a child, one must go on one's knees, come face to face and listen to him first and then respond. That is the way to help someone learn. That is the real skill of any teacher. The main concern is how to increase the tribe of such teachers, and how to strengthen them to give more and more easily. Education Technology should concern itself with this, in main.

I am sure that human interface shall always remain an essential content of education; of learning. The written word is too formal. The spoken word, the expression, the passion and conviction of the lecturer pack more learning into the words than is ever possible in a printed sentence. Written text is convenient to store and transport knowledge but it is an inferior means of communication, we should never forget this. Lecturing will therefore always remain a chosen method of education in schools, colleges and universities. A good lecture offers ideal communication between large groups of students and their teachers. It imparts knowledge, motivates one to know more and provides an engaging occupation to the mind. Modern technologies like electronics and telecommunications provide us means to strengthen the hands of the lecturers. It can enrich them with means to communicate more effectively and quickly, and relieve them of the agony of searching the illusive words by enabling one to take slides and motion pictures into the classroom. Such modern aids not only merely strengthen good teachers but also help the not so good ones to enrich themselves and to get the guidance from the masters they trust. Electronic media is an essential component of Education Technology. For a vast country like India with its enormous

problems in information management, it could prove to be the most valuable tool for national development. Luckily for us such electronic gadgets are now available in abundance and rapidly growing in usage. Even in small villages electronic gadgets have now become commonplace. However the challenge is to use them properly and effectively.

Electronics Media, Radio, Television, Video & computers, are increasingly becoming household necessities. As easily as one would buy or borrow a book, citizens today rent video cassettes for feature films. With every passing day these media are becoming more powerful in performance, less and less expensive, smaller, simpler to use & portable. Today, in India there are 35 million television sets with primetime viewership of 200 million or more, 2.5 million videocassette recorders, several thousand Video Parlours and nearly 100 thousand video libraries. In addition to Doordarshan, growth of cable TV in community, video parlours, direct off-satellite reception of non-doordarshan programmes, an increasing number of international programmes beamed to the Indian subcontinent via growing number of satellites would only accelerate influence of this media. In a country which is predominantly illiterate and populous and which has high unemployment and underemployment, electronic media, which demand no literacy skills and which brings about best quality entertainment and information to people, will have limitless growth prospects. Growth prospects are far larger than what even reputed analysts could guess. How varied and extensive will these media grow by the end of the century cannot be easily estimated? The rate at which it has been growing in the Western world and the rapidity with which new media products are finding their way into Indian homes will make any definite predictions rather hazardous.

Even in the developed countries, the capacity of electronic media always seems to be exceeding the development of programs that can make use of these media to their full potential, especially for distant learning. In India, the problem is even more acute. There

is a lack of general awareness amongst educators about the media potential. This is because most of them grew up in an antiquated era where access to information was minimal and only through one source. There is also no adequately defined and well-understood action plan to use electronic media for education. Some efforts and investments in educational program generation have been made but even these seem to lack a defined direction as well as an organised approach. Even an elementary collaboration amongst the various Government agencies involved is absent. Further, the efforts today are characteristically within the Government domain whereas the need for educating and informing people is far more widespread and universal. Unlike in books or periodicals, production and publishing responsibility of the software for formal and non-formal education through electronic media has remained with the Government. The Government, with its natural limitation of organisational structure, has a response time that is too slow for us to gain significantly by full exploitation of media's potential.

New technologies have consistently had an impact on education. Printing and paper technologies helped to universalise education. In fact the Gutenberg Bible can be considered as the first foray into making education a mass based phenomenon... "Self paced" source of information for students has changed radically, the role of a teacher. Each innovation in education provides an added dimension to the process and the expectations from the educational system. Slide Projector brought life-size colourful pictures into the classroom. Development of 16mm movie camera and film projector brought educational films into schools and colleges. UGC and NCERT Television programmes carried into the remotest classroom learning material, which could have never been possible but for the Doordarshan network. Tomorrow the video recorders will remove one more limitation the teacher has in using TV programme, the dictation of the viewing time. With video to assist him, the teacher will full control over the programme as and when necessary. He or she will have a chance to start and stop the set

when needed and to have it at any time convenient to him or her. The distribution techniques would no longer require that all viewers should watch at the same time over just a single TV channel available today. Inexpensive VCRs and community cable TV will dramatically expand access to the recorded information. Later combining video and computer technology will enable interactive learning. All these are today a reality. Walls of the classroom are now extended and one can take a factory, a farm, a city or inside of a human organ into the classroom. Our nation's best teachers, experts and Gurus can help teachers to learn continuously and upgrade their knowledge base and information delivery techniques.

Instructional Television & Video opens new doors for us. A country with 600 million illiterates, untrained artisans, craftsmen and tradesmen and whose people are starved of information must have a firm grip on these tools and must use them for nation building. In fact the inherent potential of these people remains untapped. At least, that's presently my self-imposed task.

Televisions & video are flooding the hinterlands of India. Villages have video parlours. Whether anyone desires it or not, fast proliferation of electronics media in the world is already taking place. If we do not harness it for education and information-sharing that enriches people, they would find their own material to watch and enjoy. Satellite TV was established by the Govt. with a promise to use it for education but commercial forces aided by political support to offer a populist option of using it for entertainment has already exposed the prevailing disparity between plans and actions even at the Government level.

2004

(The Author founded the Aplab Group in 1962 that has remained a technology leader for over 42 years. Amongst many of the achievements of Aplab and its reputation for quality and reliability, one highly distinctive and much lauded achievement is its Man Management. It is reflected in the fact that the company has not lost even one man-hour in labour discontent or unrest since its inception. This has happened in spite of its 1000 strong work force, many of them being semi-skilled blue collar employees. This article by him can be a lesson to Indian business managers)

MANAGING WITHOUT WORKER DISCONTENT

Widespread sickness in our manufacturing industry prevalent in the past has reduced these days with less reports of strikes, lock-outs and violence. But bitter relations between managements and employees and their general discontent continues to hurt industrial productivity and efficiency. Labour laws are the same, attitude of employers has remained unchanged and labour unions continue to be self-serving. The government has no guts to change laws and Unions are neither worried about decline of manufacturing jobs nor are they willing to follow China in amending laws that stimulate employment in that country. China created 8 crore factory jobs in last 14 years and in India manufacturing jobs declined! We still don't wakeup. I have no control over the situation but I would like to share the factory owners of my experience of the last 43 years for whatever it is worth.

Poor man-management is a dreadful disease. It is contagious and we have seen it spread fast from company to company. There is no doubt that historically workers were provoked to offer organised resistance due to their inhuman exploitation by arrogant or greedy owners. However, over the years that genuine labour revolt by organised employees was hijacked by crafty self serving labour leaders who made threats and violence their preferred route to get

management to submit to their demands than through compromise and fair negotiations. A decade ago militant unions became so bold that one wondered who exploits whom.

We in India learnt our institutional management from the British. They left behind a legacy of “Sahib” managers and a hierarchical management structure. Our owners failed to distinguish personal servants and corporate employees and expected unquestioning obedience. They demanded respect rather than commanding it. That is the root of our defective work culture. We have never been teams. Koreans and Taiwanese, who were under the Japanese rule for 40 – 50 years, inherited the work culture from their Japanese rulers. In addition, three decades of military rule in these countries have high productivity and quality consciousness. There is a judicious mix of Japanese efficiency and the White Anglo Saxon work ethic. The tiny Singapore carefully prevented indiscipline and disruptive tactics under the enlightened Lee Kwan Yew’s professional leadership, himself a labour leader.

In India however managements never took any preventive measures to avoid labour problems through specific strategies. If management strategy existed it was on the assumption that they are in war with workers. They ended up in dealing with unions and workers through lawyers. Had they kept communicating with their own employees well in time, discontent would not be difficult to avoid. Labour discord is a disease that starts because management is not careful to inculcate a team spirit amongst its employees; winning their confidence, stimulating their pride in workmanship and ensuring their advancement in skills and earnings. In addition there are internal tensions in the workforce because of politically nursed cast and religious divide. Employees need to be groomed through education and encouragement. A country that desires rapid development and prosperity for its people needs competitive industries and fast growth in its national productivity. We are struggling to catch up with other nations but manufacturing is fast depleting due to our neglect of management. One has to realise that quality, reliability,

productivity and profitability of an industrial enterprise depends, to a very large extent, on the willing co-operation of every member of the industrial family. Only a few of our companies have successfully managed manpower based on co-operation, team spirit, mutual respect, care and transparency. Others should benefit from their success. Let us understand how it works.

UNEMOTIONAL UNDERSTANDING

The fact is that labour is an industrial input just like any other raw material. It costs money and its price depends on quality and it can go up like any other industrial input. However, the similarity ends there. Human labour, both on the shop floor and in the offices, has on its price tag a lot more than their salaries. Being only an input, it does not decide profitability all by itself. In our assessment, labour, when properly managed, aids profitability but does not cause it. Co-operative workforce willing to give eight hours of its time every day, week after week is the biggest asset of any industrial enterprise. Profits however result out of creativity of the men at the top, their innovativeness, foresight, skill to gainfully use their man hours besides getting profitable business and managing the finances well.

Team's co-operation and willingness to work cannot be bought just with money. To motivate someone to work hard for a corporate cause needs conviction, leadership and willingness to take your men along with you to share your success and make 'company cause' a 'common cause'. Managing any institution involves setting up rules and regulations and getting every team member to follow them, including you. This networks the people; bringing equanimity amongst employees and limiting authority that is based only on work responsibility. This then equates more work and more responsibility with higher authority and higher remuneration. A security guard's job would then not be to salute the bosses but to guard the estate and ensure security.

Employers must understand that it is the privilege of the employees to demand better service conditions and higher salaries. It is also

their privilege to consult an outside agency like a professional labour union and seek its advice. A Trade Union's job is to guard the interest of the employees and so it is of the employer. It is not enough to be an equal opportunity employer, it is also essential that the employees trust you. This we think is the foundation of the concept of trusteeship. Management has to be humane but unemotional. I find company owners getting agitated when organised workers put forward their demands. They get emotional. When the prices of other inputs go high they handle it with a cool mind but when the labour cost goes high, they get emotional and therefore quite often become irrational showing their dictatorial mind set. "How do they dare? ", is the first reaction.

NEED TO EARN TRUST AND RESPECT

Earning the trust of the employees is a basic need for creating industrial family of the, so-called, Japanese style. In fact the concept is very old and it did exist in India and even today can be seen to exist in clans. The leader-follower relations succeeded immensely whenever the Leaders were enlightened and respected the help and assistance received from the followers. In absence of their trust, not only in his leadership but also in his fairness, almost nothing could be achieved.

In India, we have a tradition of Raja-Praja relationship. Thus employer generally believes in regimental structures and expects to be accepted as a competent superior, a 'Boss' by the people who work under him or her. But with growing social education, one is not likely to be respected only because one enjoys an authority. Such a privilege has to be earned by carefully cultivating relationships. Relationships are critical for social networking and respect is a response to your reputation. A teacher shouldn't expect to get respect just because he is 'appointed' as a teacher. One has to earn respect. Many managers also confuse corporate employees as personal servants and expect submissive obedience. Many business entrepreneurs believe that they have obliged a person by giving a job and consider his salary as a favour; forgetting that it is the price of employee's labour.

Quite a few of executives also believe that higher positions in the hierarchy are associated with better privileges but lesser work. Such people need to be shown the door. They should be aware that higher position demands better skills to discharge bigger responsibility and it is for this reason that they get paid better with some extra perks.

Emotions have no place in the management of the manpower even though humanity has to be its core. Rules and regulations and a code of conduct must control every relationship. Management must develop a code of conduct and get it accepted by the team. There should be laws and regulations which should be reviewed from time to time with an object of achieving improved performance of both the company and the employees. Discipline within an institution should come through motivation and co-operation and not through police work. Social sense of equality and human approach must be cultivated amongst the middle management. 'Badasabs' and Chottasabs' should step down from their pedestals and be a part of the team.

USING LABOUR LEADERS TO ENFORCE DISCIPLINE

Participation of employees' representatives in preparation of the code of conduct and maintenance of discipline is a very useful method of avoiding conflicts and misunderstanding. Good managements do not issue written show cause notices to employees since if such employee is innocent of the charges, almost always he is hurt and that is a surest way to earn an antagonist. If he is guilty & the company's approach is too legal or biased, the employee tends to hit back with union's backing turning the whole thing into a crisis. Therefore, management should ask the union leader to make the inquiries and discipline the worker. This approach has worked very well. Even the punishments must be productive. For instance, instead of suspension, extra work should form the punishment. Financial punishment is undesirable as it hurts the dependents more than the employee himself.

MAKE RULES THAT ONE CAN FOLLOW

We know many companies that thoughtlessly attach an exaggerated importance to punctuality and impose severe punishment on latecomers like sending them away. In our country with its poor transport infrastructure, even the most sincere person finds it extremely difficult to attend work on time everyday. Therefore a different view needs to be taken. We have found in offices and even in factories, it is worthwhile for the top management to look at only the total hours of work per day or per work & allow the middle managers, controlling a small group, to monitor the time of the individual worker. The middle manager then can take more flexible attitude and use of this concession for building a team with a focussed attention on delivering quality work.

GROOMING EMPLOYEES BY INVESTMENT IN TRAINING

In India, with the abundance of manpower, we have interesting possibilities. The family of a poor person may not be able to afford higher education; the State never has enough resources to educate everyone free. So, there is an opportunity to find potentially brilliant engineers and scientists amongst the under-privileged. This is where, through corporate educational programmes, one can create one's own cadre of competent men and use them to serve the cause of one's company. In Europe or the U.S., if someone is a scavenger or a loader, he is so due to lack of ability or intelligence. But it is not true in India. One can have Stenos who are better than the bosses they serve. So elevate the skills by investing in educating the employees. .

MEASURE PRODUCTIVITY OF MACHINES AND PROCESSES AND NOT MEN

It is almost impossible to make an objective assessment of performance of an employee except from his service records such as attendance, punctuality and such other data. If the company is producing merchandise using mass production techniques, it may be easy to measure employee's productivity. But still assessment

of the quality of his work is subjective. It involves several aspects like methods of manufacturing, availability of proper tools or jigs, working conditions and aptitude of the employee for the job entrusted to him. In many instances, the production methods are not properly designed and unnecessarily demand skills from the worker to replace the shortcomings of the engineering department. Many times one finds companies lacking the ability to improve the process of manufacture and get work of an acceptable standard through improved processes. Hence it is preferable to reward the employee only on the basis of his sincerity towards his work and his involvement with the progress of his company and NOT the skill or the intelligence. The skilled and intelligent ones should be rewarded by their promotion to jobs of higher responsibility and therefore, higher salary. But others have to be assessed based on their punctuality, mannerism, willingness to learn, co-operative disposition, neatness and attitude rather than their skill. These simple behavioural attributes should be the only basis of their performance assessment.

It is further necessary to remember that all such personal characteristics of an employee are totally subjective and therefore collective assessment of his relative performance with regard to sincerity and motivation is essential. Such collective evaluation is best done based on the judgement of his co-workers.

BEHAVIOUR BONUS

In our company workers got a good behaviour bonus. Each employee, out of ten who generally work together, gets an award. Each one in the group of ten votes other nine in a secret ballot. They evaluate one another on a scale of ten for only behavioural attributes like cooperation, helpful attitude, sincerity in work etc but not the intelligence or the skill. Management doesn't get involved in selection except rating them on measurable performance like attendance and punctuality. On the basis of the results of such an evaluation, the employee with the best performance gets a month's salary as behaviour bonus. Since the target merely needs one to be friendly, every one competes. When

everyone competes to be cooperative and friendly, it is no wonder that the company grooms a team spirit resulting in better productivity. Success of such scheme is visible thru' the fact there is not a single complaint of non co-operation, arrogant behaviour or insubordination by the employees since the last forty years and the company is bustling with the spirit of understanding and co-operation.

MAKE APPRECIATION A SERIOUS TOOL FOR MOTIVATION

To motivate the employees to improve themselves and to reward their sincerity and pride in their own work, it is essential to express appreciation of their involvement. Co-workers must be urged to identify their colleagues who may be shy to come forward themselves. Even here a human approach is vital. Co-operation can be as infectious as discontent. In fact, a personal letter of appreciation from the supreme boss (a pat on the back is not enough because one cannot show it to one's friends and relatives) is a priceless gift. This letter must be a man to man communication and not a circular or a certificate. In Japan such a result is visible. Money, as a gift, has a limited appeal and in a sense, is rather high handed.

YOUR PRESENCE AND ACCESSIBILITY IS COMFORTING AND REWARDING

The big boss must make his presence felt. He must spend at least an hour everyday on the shop floor for his own good. He should work on the machines and try his hand at various jobs. Occasionally he should use workers toilets and eat with them in the company canteen, rub shoulders with loaders and packers, walk thru' the offices and mingle with his own industrial family.

SEEK DIRECT FEEDBACK TO THE TOP

One could compare operation of the industry with the functioning of the human body. Control & co-ordination in the body is achieved by the central nervous system thru' the sensory nerves, which

sense the environment & the movements and the motor nerves which control the muscles – both voluntary and involuntary. The top management must remember that every sensory response of the sensory nerves directly goes to the brain, the centre of decision making whereas the translation of the decision into an action via motor nerves is through the muscles – the middle links which execute the decision like the middle management in an industry. So the top management must give a direct ear even to its lowest paid employee and not hear him thru' the middlemen. Otherwise it becomes like a game of 'Chinese Whispers' & the message is distorted beyond recognition.

During the industrial unrest, corporate managers and directors spend days and nights for months together (& sometime years) in seeking a solution to the labour problem. While during peacetime they cannot find even a few minutes everyday to invest on creating a strong company by stimulating co-operation from its employee family. All these respected and intelligent people seem to go to sleep till the crisis shakes them out from their slumber.

'Only fools go to the court of law', they say. In case of our Labour Courts it is even more so. Our labour laws and their interpretations as well as ways of implementation are so defective that neither the managements nor the employees should have any trust in them. Seeking dispute resolution through political arbitration is even worse. Actually political arbitration is a means of complicating the problem since it involves vested interests. Showing muscles or engaging mafia is the beginning of an end. Enlightened management and well groomed motivated employees are unlikely to create such a situation.

2003

(The author was the Chief Guest and the Key Note Speaker at the Annual Conference of “Quality Circle Association of India” held in Mumbai in 2003. This is a part of his much acclaimed Key Note Address.)

THE CORE OF QUALITY IS THE ATTITUDE

It was the November of 1971. The site was the ongoing construction of the Laxminarayan Temple in Agra. An old sculptor was giving finishing touches to a 50cm figure being sculpted as a corner piece. It was to be mounted five meters high above, near the ceiling of a mandap. The old man was intently working on it as visitors around him watched. One of the onlookers, at an unfortunate moment, dropped her handbag. That distraction proved expensive for him. A small piece got chipped off the nose of the figure. The old man set aside the entire sculpture piece and picked up a fresh one. I asked him in Hindi, “Why dump it, it is still very good. At a five meter height no one would even notice the chipped nose!” The old man looked at me with a weary smile and said in Urdu, “Saab, but I can see it.”

The moment I think of quality the old sculptor comes to my mind. Anyone concerned about quality respectfully admires the traditional “Old World” attitude towards the work of our skilled rural craftsmen, a quality of mind that is becoming rare today. One wonders what quality systems existed when temple architects and builders of the first millennium designed and built those solid structures of enduring beauty. How did they achieve accuracies without modern tools like the odolites etc that have reflected in their work and built hundreds of columns in line. . Another example is Stonehenge that personifies planning and foresight of ancient engineers. We, engineers of today, have to lower our heads in shame when, in spite of modern tools of technology and undiminished intelligence, we display our pathetic neglect for

quality. Temples at Meenakshi, Abu and thousands of others all over the country reflect on us having lost along the way precious virtues. Then there is the Taj Mahal and other monuments of quality built during the Mughal period. Its Indo-Saracenic style of architecture reflected confluence of the best of Islamic planning and Hindu artisanship. These monuments reflected a zeal and passion not evident today. I think all those wonderful people in that era knew just one way to work, the right way, with their heart in it. With attitude and devotion to work, anything less than the best could have never happened. Even today one does see that passion for quality especially amongst traditional dexterous artisans and tradesmen. This is the absolute, undiluted, uncompromising commitment to quality.

There is story about the eminent Marathi humorist, late Shri Pu La Deshpande who bought a brand new Premier Padmini in Mumbai. While driving down to Pune, poor Padmini, in spite its 1100cc engine, couldn't make it up the Khandala ghat and, halfway up the hills, broke down. Next day, Pu La wrote in his press column "*Mazi Padmini ka rusali !*". It was his inimitable way to protest. Next day Premier Motors replaced the car. We however should call the other Indian four-wheeler during that period, the Ambassador, the monument of 'quality demise' in India. The car was a product of the license-permit Raj, a deadly cocktail of company owner's greed and worker's spite. Customer satisfaction, in any case, didn't matter then.

For decades quality was something to be controlled. Those were the days of the 'Inspector Raj'. We had quality Inspectors to take care of quality, implying that workers or supervisors had no responsibility towards it. It had to be policed by these inspectors. Question of developing an attitude therefore didn't arise. Relationship between state of mind and quality, job objective and quality and concepts like designing for quality never mattered. In those days of protected economy one could not only survive but even thrive without quality. Money and good profits is all that

mattered then. If reaching that goal needs them to pursue quality, they would. Even today, in many enterprises, quality is not the result of attitude or a matter of pride but just a part of a need to survive. Post 1991, as a consequence of continuously growing international competition and as an instinct for survival, Indian Industry did wake up to quality systems. Quality Inspectors were now named Quality Assurance personnel. Even the Education Ministry's name was changed to Human Resource Development – HRD – Ministry. Whatever the provocation, the good thing is that quality became a concern of many. Those in search of tools for QA made choices, TQM, Sigma Six, Taguchi and a host of others. The global market made it necessary for International Standards Organization to define quality and quality systems. It was highlighted that product quality is a result of quality systems followed by an organization involved in manufacturing as well as the services. The theme was 'Good culture produces good behaviour'.

Japan and Germany, the centres of quality manufacturing for the world for over a century, need to be looked at carefully to understand what the 'quality culture' of a society is; the one that has an attitude for quality. Traditionally, these two countries have retained reputation for delivering quality, irrespective of quantity of production or price. When we look carefully to find why one gets assurance of quality from these countries, we will see that it directly relates to attitude of its people, their way of life and social and personal discipline one encounters in these countries. Japan has used its Buddhist Shinto philosophy combined with American management techniques to bring about a revolution of miniaturization in electronics whereas Germany used its inherent mechanical skills to revolutionise the engineering world. Quality in these countries is not a function of an economic need and it won't be compromised to be competitive.

Another manifestation of quality emerging out of an attitude that fascinates me is the way many poor people, with an attitude for quality, conduct themselves. Amongst my own workers I knew

many who would come to work in cheap, everyday clothes but these would be clean and worn tidily. I knew many had no access to adequate supply of water; they travelled in crowded trains and walked down to work. But their attitude to work gave me the confidence that they would deliver quality while on the floor. Here again, poverty or lack of resources did not seem to be a handicap for them to deliver quality.

The ISO first published its quality standards in 1987, revised them in 1994, and then republished an updated version in 2000. These new standards are referred to as the “ISO 9000-2000 Standards”. ISO’s purpose is to facilitate international trade by providing a single set of standards that people everywhere would recognize and respect. These standards apply to all kinds of organizations in all kinds of areas that include manufacturing, processing, servicing, legal services, financial services, accounting, banking, retailing, research, health care, hospitality, utilities, education, and so on. The list includes Governments, since they too are supposed to be a service organization.

To meet new ISO 9000 Standards, organization needs to develop a quality management system and make it their mission. Focus of this mission is the need to control or improve quality of products and services, to reduce costs associated with poor quality, or to become more competitive. The path is chosen simply because your customers expect you to do so or because a governmental body has made it mandatory. This is the biggest limitation of ISO. It implies but fails to state clearly that quality is about developing an attitude in life and it is larger than merely being an attribute to succeed in a commercial world. One finds men working in ISO accredited organisations stepping out for lunch, chew paan and thoughtlessly spit. How does this fit in the ISO quality culture?.

The greatest discovery of the current generation is a proven hypothesis that human beings can alter lives by altering attitudes of mind. We are on the threshold of a synaptic revolution!. A great attitude does much more than turning on lights in our world; it

seems to magically connect us to all sorts of serendipitous opportunities that were somehow absent before the change. We need to develop an attitude that every step forward is a step toward achieving something bigger and better than our current situation. One cannot tailor make a situation in life, but one can tailor make one's attitudes to fit those situations.

One of the barriers to develop a right attitude has to do with lack of confidence many have about their own strengths and limitations. Fact is, our attitude about ourselves is related to whether we choose to focus on strengths or our limitations. Those who focus on strengths do make a contribution towards quality system in their workplace. It helps to have a vision of the life one wants to lead and take steps to living that vision.

To sum up one can say that as an individual everyone needs to develop an attitude that permeates quality both in life and work. If people understand what to do, how to do it and obtain feedback on performance at home and in office, they get encouraged to take responsibility for quality of life and work they deliver. The more people feel involved, the greater will be their commitment to satisfaction all around us. Systems, standards and technology themselves will not provide quality. The role of people is extremely important in continuous improvement of quality within an organization.

The words of that old man in Agra temple, "But I can see it" says it all. That's why one has to admit that 'Quality is a question of attitude'. My guru, Dr. Leo Buscaglia aptly describes 'attitude for quality' as 'a rational ability that has often raised even an uneducated person to glory and virtue, than an educated one without that natural ability'.

1988

(This is the text of the Key Note Address given to a Conference on Innovation and Creativity organised by Indian Institute of Management, Calcutta in September 1988)

ENTHUSING INNOVATIVE AND CREATIVE MINDS

There is no dearth of creative minds and innovative brains amongst us. In fact each one is endowed with certain creativity though its manifestation may depend on the individual's intelligence and the opportunities he or she gets in life. Those who are teachers or institutional leaders have to have the ability to identify brighter ones amongst their students or their team-mates and ignite their creative minds to innovate. Opportunities and the challenges enthruses people to innovate and creating such encouraging positive environment is the task of those who lead. One has put full trust in people, encourage them to open up, help them to team up, ensure easy access for them to information and all this will blossom their creativity and skill. Experience enriches. It is a key factor if you want to stimulate innovation, whether in technology, or in identifying and reaching a goal. We have to realise that, in any human endeavour, any kind of contribution to human good, will be made by creative people with innovative mind.

What are the facilitators which help one to innovate? Obviously, the first one is the environment. When we talk of environment, it is really the times that one lives in. Two things need to be considered here. What are the needs of your time and what do you conceive, as the need, in the terms of improving the way things are done. Secondly, one has to try and identify what is relevant to one's own self, consistent with the environment.

The second facilitator is really human relationship. It depends on the environment in which you are working; the human environment. Who is your teacher or boss? Who is your colleague?

How do you relate amongst the group? Does your guide or boss believe that younger people could be smarter? Does he have respect for your capabilities and does he allow you to perform? In short are you a part of a conscious creative team? Here we have a very peculiar situation in India. This is why we are getting less and less innovative. Our ingenuity is today directed more towards selfish things, like innovating ways to cheat, to evade taxes, to bribe without getting detected etc. We are forgetting that smarter nations are directing their innovative efforts that create real wealth; not just monetary but sometimes invaluable like the inventions that benefit the human society with a new drug, a new way to avoid hazards in life, to add comforts to those suffering. All this is leading them to make money and be proud of doing so without guilt. So, essentially we have to go to the root and realise that new knowledge is the key for a sound progress of an institution or a society or a country. Today we seem to respect those who are cunning and short-sighted enough to be self-centred. Our role models are such leaders in society, in industry and more so, in politics.

Innovation and creative work doesn't always mean earth shaking invention or discovery. It is a series of mini-inventions and innovations that gives a simpler, safer, cheaper or completely new way of achieving something. Team efforts are also of vital importance. A manager knows very little as compared to the man who works at the shop floor. In an office the person managing the front desks knows more about certain aspects of the functioning of a company than its Managing Director who doesn't walk around. One has to facilitate entire team's imagination, drive and ability and desire to work by giving them freedom and trusting them.

In India, very businesses are technology driven. India registers insignificant number of would patents; less than 5% of what a small country like Israel does. Our trader owned industry houses import technologies of simple products at fancy costs. It reflects poorly on our own self respect and our respect for our own

intelligence. We are proud of our glorious past but that doesn't hide our contributions to pathetic present. The future we are creating today for our young would never make them proud of us when they grow. We do not have performance to feel proud. There is no use bragging about being world's third largest technical manpower. We should worry about our failure to ignite these young minds to compete and excel. The poor quality of training we give in engineering and professional institutions will not help us create the kind of environment that brings out innovation.

Challenge and competitive spirit are necessary to bring out one's best. Innovators and creative minds need confidence to experiment and a challenge to their ego. Till 1954, Mt. Everest was unconquered. It made front page news when Edmond Hillary and Tensing Norkey landed themselves there for the first time. Today scaling the Mount Everest has become sports page news in a fine print. Tensing scaled to the top with oxygen but now all reach there without it. The same is true of running a mile in four minutes, once considered impossible, even physiologically. Today people are not happy even if they have covered that distance in three and a half minutes. Ever since Olympics started, every four years several old records are broken. It looks as if athletes run and swim faster, jump higher and longer and set new world records just for being broken in the next Olympics. Have we found a new elixir for human endurance and abilities? No, it is merely a question of gaining confidence. If one has set a record, another must better it. That is the drive. When the programme to go to the moon was launched in the United States, some one posed a question to President John Kennedy, "Why do we want to go to the moon?" He said, "Simply because it is there". Because the moon is there and we are human beings, we are innovative, we like to take up challenges, and we would like to go there. This is the basic, fundamental input which any innovative effort needs.

Then, there are other human qualities which keep us pushing. The first one is the self confidence to find and deliver a solution.

The second, and more important, is the scientific and analytical ability of the human mind to learn from its own failures, its ability to look at a failure in its totality. Like a clever scientist would do. He would not like to see the failure in parts and get discouraged, but he would consider the little successes in those failures, which forms the basis for his or her next experiment. Therefore the scientific ability that one develops over a time really comes out of learning from past failures. When Thomas Edison amazed scientists by showing his light bulb, he was asked what helped him to achieve that bright and shining success. He said his five hundred past failures to do so.

When we talk of innovation, there are two distinctly different aspects. One is innovation in looking beyond what is today, even beyond the so called frontier technologies. It comes out of ideas and concepts from dreamers, almost philosophers. The second is the innovation which relates to current functioning. Both are equally important. Innovation is a very personal matter. It means an internal, sharp desire, relating to fundamental level, and we have to ensure that we provide and create that environment.

Most innovations in multinational conglomerates today are planned efforts to create Intellectual Property. It is done through conscious investment in 'blue sky' innovative ideas. It needs hard work of a team besides money. Innovation and creativity would never replace the need for hard work and sustained efforts to forge ahead. Trust in our goal would make light of our hard labour but nothing will replace working hard and working smart. As someone has said, "success consists of ninety-nine percent perspiration and just one percent of inspiration".

There is also a need for discipline. Unless challenged, imagination does not flare up. But even imaginative minds need to be harnessed with planned and disciplined work otherwise they can run wild. When such minds are cornered, they fight back with performance. They might howl and cry but that is the best way to get the best

out of creative people. Another very strong impediment to innovation is the protection from competition. Innovation is not in short supply in India. In fact it is there in abundance. But since it is not harnessed for a right cause and left unchecked it is reflected in mischief and crimes. Our governments have a lot of innovative officials but their creativity is seen in their innovative ways of extracting bribes and go scot-free. People need to be pushed in a right direction to bring the best out of them.

To stimulate good quality result oriented research, one has to put one's money on scientists, not the institutions. If you invest in a scientist and his innovative idea and help him create his own coherent team to realise his dream, it has better chance of success. But we do not do that. We start an institution and search for a man; and often put a wrong one; to head the institution. Predictably it becomes a disaster. Find the right man and build an institution around him. That could be our chance of success. One thing is certain. Neither the Japanese, nor the Americans, nor the Europeans, nor anybody else in the world are in any way interested in the welfare of this country. We have to worry about it ourselves. And so long as we do not create environment that encourages innovation and rewards enterprise we can't make it. Thoughtfully putting these together will pay the country excellent dividends.

Consider the infrastructural limitations in India. We want to progress very quickly. We want to increase our base and overtake. By the time we are in the next century, we expect ourselves to be equal to everybody else in terms of development, or at least, desire that the distance we have today should be reduced. But we are a poor country and facing heavy resource constraints. We want good telecommunication, good roads, stable reliable electrical power and better quality in everything. We need education, healthcare, clean water and local empowerment in our hinterlands. All this would need a lot of hardware, a lot of products, and a lot of manufacturing, to support. To support this manufacturing, you need to focus on R&D that delivers solutions very fast. For all this to happen without the entire country teaming up is obviously

not possible. Here I am addressing the cream of our talented youngsters and want all of you to commit yourself to make that a reality.

2001

(The original article was published in 2001 in a Marathi Newspaper in their Youth Forum supplement. Its message is universal and so we requested the Author to present his ideas in an English article so that it could be included in this collection. Young readers would find it engaging.)

LIFE OPTIONS FOR TODAY'S YOUNG INDIANS

Unlike the adults, managing change is not going to be a major challenge to young Indians but choosing life options would be. Migration of rural families to metro cities, ruthlessly competitive life, electronic media exposure, a new sense of total unmonitored freedom due to anonymity of individuals in cities, consumerism unleashed by businesses, social acceptance of the corrupt in business and politics, greed driven self-serving people around and the liberal moral code has changed everything. The change has come too rapid for the elderly to assimilate but the young ones are agile enough to step on the current life wagon without much stress. For them there are no hang-ups from the past. Freedom is the new unstoppable virus for the young. More and more are loosening the mental shackles of traditional values. Today life options for young people are many and so 'choice' rules. The old ways of living have been abandoned. Traditional institutions are no longer a safety net as before. Family ties are progressively weakening and desire to sacrifice for family members or accept responsibility for them is vanishing. Homes for the Aged are growing everywhere. Government's welfare institutions are being thoroughly mismanaged through callous neglect.

Sum of it all is that soon everyone will be alone; fighting one's own war. This kind of free-for-all freedom equals more responsibility. If one does not make choices, someone else, somewhere else, will make them. And one can be sure that these people will not care too much about your well-being. Therefore

to survive and thrive in tomorrow's world young need to arm themselves with the most lethal of weapons: knowledge.

It is useless to dish out any advice. Like I always felt; wise don't need it and unwise don't heed it. Rather than telling young what to think, it is better for them to think about the changes that are currently reshaping our jobs, companies, societies and, indeed, our personal lives. Time has come for the young to make smarter choices, or at least to understand that not making a choice is no choice. One must make a choice and do it wisely and carefully. For that one has to learn and be knowledgeable. You have no one else to depend on.

The new world will eventually destroy the manuscript of the past. The forty-plus generation of Indians would be on spinning wheel the rest of their life and would have to helplessly watch their life being reshaped like a piece of metal on a lathe machine. They would have to give the freedom to the young they never got and lose their authority over the young. Every parent will have to give their young ones the freedom to know, go and do whatever they want, regardless of gender or social class. As a price the young would face a lack of stability and in the process learn the art of surviving and thriving under conditions of high uncertainty. The days of life-long loyalty are coming to an end, whether towards a country, company, husband or wife. For a decade more we in India may still be posing questions on the future of democracy, government, etc. but that will also end.

The young will have to be more knowledgeable and wiser than their parents, especially those with 'successful' neo-rich parents, having made their wealth legally or illegally. That wealth came to them too quickly and in some cases too easily. Distinguishing between price and value is not always easy when money is in plenty. Consequently they are being controlled by the money rather than the other way around. Some of the consequences of this are indeed frightening. Young in such families may be in a greater risk of making wrong choices.

The opportunities for the young to have a richer life in the current times are many. Today you are not limited by traditional choices. Having and realising one's dream is today far easier than before. Those with business ambition can create companies not just to exploit and grow but one which others would find inspiring to work for sharing your success. Also it is possible for India, as a country, to develop into a society in which more people will have a genuine chance of realizing their dreams. But we can not wish away the poverty around that has become so thoroughly a part of the life of the rich whether they like it or otherwise. It is entwined with our life, we feel its presence in our housemaid, chauffeur, street vendor and in zuggis on the plot next to our well furnished home. We can't wish it away but we can do something about it. Young have to think about this in two ways. First is to make up their mind as what 'a good life' is really all about and second to judge people by their talent than their money and respect them for what they are and not the money they flash around. These deprived people are a valuable human resource with a great potential. World of art and cinema has recognised it, businesses haven't. You find great talents dug out from those teeming millions coming into our cities. It is a good beginning in order to get rid of that human shadow called poverty casting behind us all the time. It is good to remember; brighter your life style, sharper the shadow.

We sometimes forget that more freedom also implies more responsibilities for taking care of those around us. I read somewhere that the market – the dominant institution of our times - is not a substitute for responsibility, merely a mechanism for sorting the efficient from the inefficient. Merely criticising capitalism and brand marketing would solve nothing. Clever can use the same as a problem solving tool of the 21st century. No point in getting growingly frustrated with the globalisation currently in place. Capitalism can be the greatest tool for enriching India in an organised fashion. As a tool, it is neither good or bad nor right nor wrong. All depends on in whose hands it is. Sometimes I think that Chinese rulers have understood it better

than ours. China has generated fifty times more jobs for their poor each year than India has.

Like any other tool technology is also a tool and, to take advantage of it we need to learn using it. A Sitar plays magic on our mind when it is in the hands of Vilayat Khansaheb while in inexperienced hands it hurts no end. Young also need to realize that technological development necessitates changes in our institutions and in our values. If there are no such changes, technological progress will not produce the financial, emotional and human value we anticipated. The so-called digital divide is not a consequence of the technology as such, but rather of our inability to use it in creating a world where more people are given an opportunity to develop their talents.

Sensible young people in rich homes are realising that too much money is essentially boring. You buy a product or a service with it and someone else derives all the pleasure of producing or delivering it. Possession is not the real pleasure, creating it is. It is far bigger pleasure if you make something than buying it. You get short changed on the excitement if you just buy it. Servant cleans your room and you lose the opportunity to clean and enjoy as room cleans up in front of your eyes. You order a Pizza from the Hut or a samosa from your cook. You finish eating it in a few minutes and lose the opportunity of cooking it to meet your own taste and presenting it elegantly on a plate to your friends. There is a great pleasure in being a hands-on person that also adds to one's self-esteem and engages you challenging your creativity all along.

Jeans were created for hardworking hands-on people and it added to their rugged personality and glamour. Today's young wearing artificially soiled jeans look like jokers. Most of the rich young miss the chance of getting roasted in life's oven so they remain well dressed dolls. Risking life, attempting to run the fastest or jump the highest is not their pleasure. National athletes in India come from the middle or the poor classes. It is the economically

well placed who can and should risk taking non-paying but exciting and rewarding careers. Those from the lower economic strata have family burdens to carry. India would win gold medals only if we have many more to take to playing competitive sports and giving their life for it. Your father has made the money for you so go after activity that would bring out the best in you leading you to a sense of fulfilment and yet keep the challenge in your life in tact. Thirty centuries in cricket is satisfying achievement but the challenge for Tendulkar to keep up to his reputation hasn't ended. Reputation and fame will keep you young at heart. There are any number of millionaires, why be just one more. Instead be the fastest swimmer in the world. You will be the only one till someone else gets faster. In reality what most of the young of today do with their time? Pointlessly chat on your cell or send SMS for a hobby or hang around restaurants peeping down the low necklines. Hobby is to listen to music or watch a game. The better ones might reel statistics or debate performances of the players. What a shit of time to spend that gives no pleasure that lingers like a good perfume. And your money-bag Dad can't put a kite together for you and teach you to fly it. He therefore does the only thing his money tells him. He buys the most expensive one for you that generally doesn't fly. When money takes one's control one becomes handicapped cripple. One then has no guts to fight a rude cabby or a street smart political hooligan. One becomes a slave of endless shopping and fucking.

What is intrinsically destroying the neo-rich Indians and habitats of South Mumbai, South Delhi or South Kolkata is their mental slavery to the dangerous extremists of the super capitalist society in the US. Look at the Electronic Media and the way we ape the American Way. Look at the sitcoms or formats and stage craft for even the talk shows. Money seems to replace creativity than sharpen it.

1995

(The Author cannot recollect in what Management Institute he delivered the following address but we feel that it is an important address on what leadership of people is all about and provides many bench marks for business leaders to measure themselves against. That is why it is included in this collection)

WHAT MAKES BUSINESS LEADERS CLICK

I have no formal training in management but I have been managing many institutions over the last three decades. You are undergoing a well-formatted course leading to an MBA from this reputed institution. You are being groomed to be team leaders by several experts in management science. Management science is a practical art which necessitates a comprehensive study of all disciplines. Managing skills of the people of my generation are honed through experience and therefore we believe that management is more an art than a science. It is about having a dream and building a team around you that shares that dream and delivers results. Obviously those who lead have to have certain essential attributes to build a functional result oriented team. Some of these are a part of one's personality chiselled through life experiences and the upbringing. Some have to be studiously acquired by learning from the successes of other leaders. Indeed your training material is in itself synthesised by studying performance of such real world achievers. I therefore hope my grass root experiences will help you to compare notes with the theory you are mastering. You should however pardon me if I don't use your vocabulary.

Often people ask me what it takes to build an institution. Institution building is always a cooperative venture initiated by someone who has envisioned its need and harnessed a team to realise that dream. The growth of such an institution depends on its leader's ability to create a team wanting to share that dream. The rest is achieved through participation, delegation and trust. Compatibility

of style and commonality of purpose is vital for any team to be successful. A loner can be an outstanding scientist or a professional but he can't be a leader. The ability to function in a highly participative environment is a must. The leader always climbs higher in position and esteem through delegation of authority and responsibility to juniors and trusting them. He never strives to be accepted through popularity. He knows that when his juniors advance he becomes bigger and sharing of responsibilities doesn't lead to a loss of authority. So let me highlight some of the attributes that can make a leader click.

Nothing can be ever achieved without involvement or intensity. Any team builder ensures that the team members are involved, dedicated and believe and trust the cause.

Such a team functions in a timely and productive manner and is generally able to work well with others in a non-threatening or non-obstructive fashion. Ultimate success is then a primary goal and therefore all work together with tact and patience.

A good leader always provokes his juniors to think independently and use discretion even while being a part of a team. To be able to know when to act needs intimate knowledge of how different roles in a team work interact among themselves and how the total organisation inter-relates. This demands clarity about ones own job responsibilities and those of all the players. Ability to use discretion helps one to keep things in a perspective. Such a leader appreciates the difference between knowing about something and being authorised to act on that knowledge as also the limits within which to act.

The top man has to operate with transparent honesty and integrity. Transparency has to be visible. He can then demand personal accountability from his team members. He has to set an example by owning mistakes. This is a virtue take one higher and higher very rapidly. Every leader also takes responsibility to adapt to attitudes which would bring out a sense of confidence and courage

in the team. He encourages his team not have the fear of being criticised or blamed for one's actions. Otherwise team mates would resort to safer postures or behaviours to remove themselves from visible positions of responsibility.

Leaders of merit show, by their own example, how to collaborate, to listen, to understand and to express ideas and concerns effectively and openly within a group. Communication is an important skill and a need for survival. A passive recipient of direction from others is of little value to any growing goal-oriented organisation. Passive obedience hurts any organisation that survives on ideas. However sycophancy is a trend in many organisations including bureaucracies and the most modern of organisations. This stifles the growth of ideas but seems to be a practical imperative for most people to give them for that day their daily bread.

Using Information properly results into knowledge and assimilating knowledge leads to wisdom. Decisions based on wisdom help organisations grow. Great leaders have quest for acquiring, analyzing and using new information. Knowledge is power and our great scientist Mr. Kalam is a testament to this fact. Any fixed knowledge can be stored in a computer database therefore leader needs wisdom and not merely knowledge.

Karl Marx, Mahatma Gandhi and even Gautam Buddha were unmatched Thought Marketing geniuses. They thought, they observed and they put forth convincing solutions. In fact each one of them was a non-conformist in his own way. They went against the trends of that time and innovated a new pathway which suited the time and the place. In fact to call it marketing is not quite right. They found for the society a solution to human problem and got people to believe and look at life their way. A leader's role is similar but, may be, for a more mundane cause like commercial business but conduct it in a new way. One then enjoys being a proponent or a leader of change. That denotes ability to connect strategic vision with an action plan.

A forward looking leader perceives change as a healthy, normal and necessary for rapid growth. Dynamism in an organisation is reflected in its ability to progress through change. Creativity comes to the fore only when there is a suitable environment and an adequate amount of resources which encourage innovation. Good leaders enthuse their team to fight status quo and provoke creative debate on how to change.

This is the Knowledge Age and a modern leader derives maximum benefit from the new IT technology tools like network computing to his maximum advantage. Information flow would enhance efficiency based on the way it is structured and its user friendliness. The crux of the problem lies in developing skill for speedily culling out what is worthwhile data to make the right decision. Many EDP managers seem to be more involved in the means than in the ends and the leader has to know enough to avoid being taken by the garden path of exotic claims of computer whiz kids. The leader's knowledge of computing must be enough to keep in constant view the user needs and ability of computer system to fulfil such needs.

I suppose that sums up my thoughts on what one needs to succeed as a leader. A good leader is not one with the gift of the gab that pulls in large crowds and gets thunderous applause. A Crowd could be emotionally charged by some but a crowd has no direction. A good leader has followers moving towards a goal not just listeners. A good leader sets an example that his team would follow. A Lecture, including this one, is merely a way of sharing information and ideas. One needs to contemplate and understand it fully to turn it into knowledge. Finally I wish you all click as competent team leaders in your professional careers.

Four

**Solutions
that may still Benefit**

(The concept of Technology Missions was Rajiv Gandhi's way to harness modern technology for development. In 1986-87, the concept was concretised in an action plan to harness modern technologies in a focussed way to solve some nagging basic national problems like the lack of Literacy, clean and adequate water supply, Immunisation of children and extending modern communication tools especially to our seven lakh villages. While the Mission was to be steered centrally, most of the mission targets were within the scope of various state administrations. The beneficiaries were to be rural folks and reaching them was essentially through District Collectors. Sam Pitroda accepted to take up responsibility as Mission Director and the missions functioned under his overall control. The programme got bogged down at the level of state administration because of the varying interests of the people involved. It petered out in early 90s. This good idea needs to be community driven. The author, who was associated in the formative stage of Missions, offers an alternative to revive it again.)

REVIVING TECHNOLOGY MISSION- MAKE THE MISSION INDUSTRY DRIVEN

Much water has flown during the last decade but the rural scene has not changed significantly even though liberalization of trade in general and growth of IT in particular, has benefited the middle class and the educated class to a great extent. The rest of society still remains marginalised and economically weak. Empowering them with resources for self-development is as necessary today as it was twenty years ago. The Central Government should evaluate the following options:

1. Technology Mission, as a concept, is still extremely relevant and valid. The Missions are necessary to solve those very problems for which we had taken an earlier initiative. If at all, they have been only marginally resolved during last two decades.
2. The means to implement and finance missions however can now be radically changed. I believe that there is an option to implement these by actively associating various industry

groups not with just funds but also management of the implementation.

HARNESSING INDUSTRY GROUPS FOR MISSION FINANCE AND IMPLEMENTATION:

1. I believe that in certain sectors, we have highly profitable industries that have been growing from strength to strength for several years. If approached correctly we can get such industries to collectively finance as well as manage some of these missions.
2. Using business groups for this cause will have many benefits in terms of efficiency, optimum use of resources deployed and a planned and measured programme to benefit the target group. It will also heal growing distance between business and the rural poor. The country has committed itself to give a tax holiday to the IT Industry for the next five years. Today IT is market driven, ever growing and a highly profitable industry. It has conscious and highly skilled management led by men like Narayan Murthy and Azim Premji. More significantly both have their heart in the right place even though the approach is different. It is possible to call these industry leaders and request them to take up the Literacy Mission. For every rupee that they spend, the Government of India can contribute 25 paise. IT industry, in my opinion, will agree. After all, wide spread literacy will only help them in the long run. They also know that they have to do something to bridge the ever widening gap between the info rich and the info poor. There are many ways by which growing literacy can benefit the illiterate, the IT industry and the country at large.
3. The Oil Companies are very profitable and will be even more with increasing crude prices. ONGC will soon be rolling in wealth just for being in the right business. In addition, oil majors like IOC get a gift of 20% price protection to discourage imports of refined products. Till now the major

portion of this industry is in the Government Sector and gives over 100% dividends to share holders. I believe that they could be asked to voluntarily take on, say, the Clean Water Mission. “Sell oil – Give Water” deal; so to say!

4. Yet another potential Industrial sector for the cause is the Pharmaceutical Industry. They too might come forward to manage and finance “Health for All” mission including immunisation but one needs to be cautious with their motives; will those who thrive on ill health work for disease prevention? But they are rich enough to finance it.

(MTB Plan was a concept that worked wonders with the Small Scale TV Industry in India. It also demonstrated an appropriate role for the public sector in helping the government to develop a globally competitive local industry, help increase in domestic value addition, deliver good quality products and bring down product prices to an affordable level for rural masses. The strength of a co-operative movement was imaginatively harnessed by the author to deliver results).

FRANCHISE IN MANUFACTURING- MTB PLAN A TOOL TO STRENGTHEN SSIS AND COMPETE WITH LARGE COMPANIES

In the mid 80s there were over 200 Small Scale Industries in the country manufacturing television sets from imported kits. None were growing in strength nor making any significant profit. At that time I was the chairman of ET&T, a Government of India Corporation, that was the monopoly importer and the only source of television tubes for all television manufacturers in the country, big and small. So we precisely knew who made how many televisions. Most of the television components were also being imported and the local component industry was not making much headway. My task was to find ways for the Indian Industry to grow and increase domestic value addition. Once the volumes used in the country reach a critical mass, companies will invest to manufacture such parts. With the growing demand for television sets, the television industry was an appropriate starting point of kit assembly and then vertically integrate. As its Chairman, my aim was also to make ET&T strong and profitable. Soon I had a solution that I called the MTB Plan. The plan was a great commercial success and brought glory to ET&T and smiles on the face of over 150 small scale entrepreneurs spread over the country. By 1987, the ET&T brand of B&W televisions was enjoying a 40% market share!

WHAT WAS THE MTB PLAN?

A quick study revealed handicaps of small scale manufacturers of assembled products in general and those involved in assembling

television kits in particular. First, they lacked a brand name and deep pockets to create one. Next, the small volume production deprived them from getting components at low prices compared to big manufacturers enjoying huge quantity discounts. This severely ate up their margin. Finally they lacked the grip over technology, both in designing as well as manufacturing.

ET&T as a monopoly importer of Colour TV tubes was sourcing this component in bulk. We could do the same for every other TV component. I therefore decided that ET&T, in its own interest, can and should offer help to these SSI units in all three areas that they suffered handicap; access to Materials at competitive prices, Technology skills and Brand Equity. Therefore the project was christened as the MTB Plan.

It was clear that low overheads of Small Scale Industries in manufacturing and field support would help them to gain market share from big names when they get a proven design, training in manufacturing quality products, all parts at the lowest price and a reputed brand name to sell under. That would be a Win-Win solution for both ET&T and member SSI units.

I was already successful in bringing down prices of imported television tubes from \$70 to \$56 a piece almost in a single stroke by playing big, a number game that few practiced then. I asked ET&T to float an open tender for half-a-million colour tubes and every known manufacturer in the world was at our door step to compete. A honest tendering process helped us to negotiate an admirable deal. The Government of India saved millions of dollars in foreign exchange. I therefore had taught ET&T to buy wisely that ensured to get high quality products at a competitive price. We planned for million television sets at a time and could put together full set of parts for 14" monochrome televisions and 20" Colour Televisions at unforeseen prices. MTB Plan also helped domestic TV parts manufacturers to reach the right scale of production to deliver high quality parts at globally competitive prices. Through proper quality assurance training, ET&T could

ensure high quality end product that could justly carry ET&T label. SSI members manufactured and sold r sets under ET&T Brand in their region at an agreed price. Buying prices of Rs.1400 for a 14" B/W Television and Rs.5000 for a 20" CTV became the talk of the town and got a honourable mention on the floor of parliament.

The MTB Plan can work even today. Small enterprises and even retailers normally serve a small community and are never in competition with one another. They thus strengthen themselves by sharing a common brand, retailing management knowledge, a common purchasing plan leading to large bulk procurement and common promotional programmes. In fact it can not only save our endangered small retailers in protecting business but even fight multinational retailer chains that would land here any time in spite of governmental assurance today of not allowing foreigners in retail trade.

(There is an urgent need to undertake measures to visibly make an impact about the concern of our Government on key national concerns and provide appropriate solutions. A solution involving imaginative use of commercial television evolved way back in 1986 by the Author for aiding mass literacy drive has unfortunately remained just a dream. We think its time has come now!)

COMMERCIAL ELECTRONIC MEDIA TO SPREAD LITERACY

It is not necessary to state again that literacy is a vital skill for personal advancement in life. Knowledge one needs to enrich oneself is mostly stored in written text so everyone needs reading and writing skills. Lack of these skills hurts personal progress, productivity, work efficiency and ability for self-care. Every Indian therefore has to be literate. In this respect we have two challenges. First is to ensure that every child born in the country gets a chance to go to a school nearby its home and the second is to find a way to enable crores of functionally illiterate adults to acquire ability to at least read the written text. I believe that there is a very effective and novel way to achieve the second challenge to reduce adult Illiteracy by using the state owned television without hurting its commercial revenues.

The skill to read written text involves alphabet learning as the first step which, for Hindi or Marathi, is correlating the symbols - the alphabets – with the sounds they know. Written Aksharas, like *ka, ta, pa* etc, are indeed the shapes of the sounds. Hindi, Marathi and other Indian languages are phonetic and one writes them as one speaks. The same is the case with other Indian languages but the shapes of the sounds are different.

Ten - twenty seconds of commercial breaks during each half hour of DD program time slot is enough to make illiterate viewers memorise the Devnagari Alphabets – अक्षरपरिचय - leading to their the first step to literacy.

Learning alphabets are nothing but correlating the pictures or the shapes of the basic sound that constitutes the script. Devnagari

Script has 40 important alphabets of which 28 are the most used consonants like क, ट, म, घ and 12 are vowels like अ, आ, ई, ए etc. Each alphabet is indeed a shape of a sound. The Proposal therefore is to help the illiterates in the community to learn and memorize the shapes of these alphabets and correlate them with their sounds. Task is to 'fix' these 40 shapes of the alphabets with their sounds in everyone's mind. Once this is done the first step towards removal of illiteracy; *Akshar Parichaya*, is then achieved.

Advertisers of soaps, face-creams and consumer goods have refined the art of delivering messages to viewers, including the disinterested ones, and anchor various brand names using 10-20 second spots in a reiterative format. Plan is to use these creative media artists to *sell* the *Aksharas* or the pictures of their sounds. The creative media talents are ready to produce such 10 or 20-second *Akshara* Spots, one for each alphabet. We show these like the advertisement spots. We just use 20 seconds from every half an hour program time of the commercial television channels of the Prasar Bharati. This would not hurt their revenue at all if the 23 minute program time gets less by mere 20 seconds.

This way we can help the young and the old illiterate people watching television to correlate and memorize the shapes of the sounds of these few alphabets. They can then read *Aksharas* used in the written text like on the hoardings and the newspapers. Reiterative format of television will help the process of memorizing this *akshara* shapes. This would greatly help us to put our first step towards functional literacy.

Achieving this basic level of literacy on a mass scale, covering entire Marathi or Hindi population of illiterate viewers, is therefore as simple as helping them to memorize these 40 shapes of sounds. They will get basically equipped to read the alphabets.

'AKSHARA' spots should be regularly and repeatedly telecast, strategically intermingled with popular television programs on television channels, especially the religious discourses,

mythological serials and other programs that attract illiterate viewers.

Stringing words and simple sentences – second step to primary literacy

The next step involves using half an hour slot close to the prime time to conduct informal literacy class and this is a commercial challenge. Can this be possible? Who will finance this? Will illiterate men and women gather to watch? Problem is most of the illiterate people are not necessarily eager to acquire reading and writing skills at that hour. So it is a dual challenge.

Now consider what would happen if we manage to enthuse the President and the Prime Minister and they agree to give the first few lessons to be followed by other ‘screen magnets’ like Madhuri Dixit, Amitabh Bacchan etc. These personalities would indeed follow an expert script in a program that uses high-class animation etc but these ‘people magnets’ would also attract crores of viewers including huge number of illiterate adults to the television screen. Crores of viewers for this program should bring shine in the eyes of the commercial television management. It means high TRP.

Literacy Campaign – A money spinner for Prasar Bharati

When several crore people become accessible, do you believe that the advertisers will not queue up for delivering their own messages? Wouldn't sponsors pay the highest ever revenues to Prasar Bharati? Doordarshan would again enjoy like those glorious days of Ramayan and Mahabharat.

Once Prasar Bahrati sets this ball in motion, others will follow. DD itself can do it for other languages in the south. It would turn this into a movement by encouraging local literacy clubs to be formed at rural and urban level by local volunteers. They would use these telecasts to gather local population for watching and offer local help and guidance.

(In the present era of fast depleting natural resources it has become imperative to develop new alternative sources of energy on a war footing. It is but natural that these alternative sources are derived from the renewable natural assets rather than non-renewable sources like the hydrocarbons. Solar and wind energies have been harnessed in various ways to generate power. However there is a very important and a huge potential resource for Animal Power that has somehow been overlooked in all the attempts to find non-conventional energy for power generation.)

FARM ANIMALS— ANOTHER FORM OF SOLAR POWER

India has a cattle population to the tune of almost 20.5 crore. Of these almost 9 crores are buffaloes, bullocks and donkeys with 75% of these belonging to small farmers. According to a team of agro-scientists, almost 30% of the energy for the crop production comes from these animals. For the rural poor, however, cows, buffaloes and bullocks are not just utility animals, but also companions at work and often kept in close vicinity of their own dwelling. That's why in India, we call these farm animals as "Godhana". These mostly graze in open fields and live on straw and agricultural waste that we cannot gainfully use. They live in harmony with nature and environment. Nearly 90% of the rural Indians use manure for energy, such as cow-dung cakes for cooking. Seven and a half crore of our rural folks are the milk farmers, most of whom are today remarkably harnessed for the white revolution based on imaginatively structured cooperative movement set in motion by my friend Dr. Vergese Kurien.

Energy from Farm Animals is a kind of solar energy since they are a part of the Nitrogen Cycle. Each farm animal can deliver at least half the mechanical power that a horse delivers. In one hour's work it can deliver an equivalent of 400 WHr of energy. This is therefore a new source of solar power not yet exploited to generate electricity. In a day's work, one could obtain as much as 1.5 kWhr of energy per animal per day. Even if half of our bull population of three and a half crores is harnessed for this work, we will have an equivalent of 30,000 Mega Watt Hours of energy per day. This

pure, non-polluting and eco-friendly power is also renewable. Compare this from other natural sources like 1870 MW of Wind Power, 1500 MW of Small Hydro Power or mere 2.5 MW of Solar Cell Power that we produce today. Even the potential for the Wind Power in our country that is currently estimated by the experts is 45000 MW. Interestingly this energy, in effect, is available fundamentally from agricultural waste products and the Sun. Therefore this energy resource could be considered absolutely free, like the wind or the solar heat and light.

As of today this opportunity is almost wasted since the input is available but the output is not utilised, as the process itself is not envisioned. Most of the farm animals in our villages are put to work just for about three months each year for rearing crops and for rest of the year they are fed and taken care of but not put to any significant physical work to use this potential energy. During this period we lose an equivalent of several thousand Mega watt-hours of energy each day!

It therefore makes a great sense to tap this yet unexplored source of energy and imaginatively use the current technologies to help our farmers use it efficiently. If we find a way to convert this into electrical energy, rural India will undergo a revolution. This local source of electrical power will give three to four units of energy in rural homes, sufficient to fulfil their basic needs. High cost of distributing power in these hinterlands has hampered rural electrification. We can overcome this with ease.

It was during 1984, as a Rajiv Gandhi Team member, I had put forth this proposal. The most important of the priorities that we recognised was to harness modern technology as a tool for rural development and not an end in itself. India needed to change fast and catch up. We had an ambition to compress generational changes in a short span, give up the old ways and deliver systemic changes to benefit our masses especially in rural areas. But for various reasons the opportunity to explore ways to utilise this huge energy for rural development has remained a dream. My

original paper of 1986 on this subject would be lying in some dusty file of the Ministry of Non-Conventional Energy Sources, Government of India.

Ultimately in mid 90s, the renowned social worker and my friend Shri Kantibhai Shroff of Excel Industries set up the first prototype experiment on this project. He created a bullock driven rotary shaft to drive agricultural tools like fodder choppers and also to drive an automobile alternator. The concept, in its crudest form, was to use a pair of bullocks to walk around, as is currently being used for squeezing out sugarcane juice and use gears to drive, say, an alternator, as is used in an automobile to charge a battery. A few disowned bullocks from *panjar pole* in Mumbai were harnessed. Though it proved the point; the time and monetary resources did not take it to any viable solution. One interesting effect worth mentioning here was the vast improvement noticed in the bullock's health!

A few crores imaginatively used through a private initiative and a motivated team of youngsters can help us develop a Bullock Driven Generator costing a few thousand rupees. A pair of bullocks can help the farmer to generate and store three to four units (kWHrs) of electricity each day and use it in his home and farm absolutely free as far as the input costs are concerned. Thus he can use electricity free of cost to power lights, a television, a personal computer and a wireless telephone link that will connect him to the rest of the world. This will enrich him with information, add to his functional efficiency and make his family life safe and comfortable. For our industry, this will create a large new market for electrical home appliances and other goodies. A few thousand rupees of initial investment is all he would need to achieve this. India, with its strong agricultural backbone, would then use less of hydrocarbon resources and help to conserve them.

It was Rajiv Gandhi's as well as my dream to use technology for solving day to day problems. I think it opportune to go public now with this concept for someone enterprising out there, to turn

this dream of his into a reality by lighting up our hinterlands brightly. Finally this indeed is a global opportunity since what is true for India is also true for almost every developing and undeveloped country.

(In February 2000, the author suggested this solution to the State Bank of India while he was addressing a conference on Smart Cards as its Chief Guest. The solution is still very valid even in 2006 and would now cost considerably less!)

EFFICIENT, FRAUDFREE AND PROFITABLE MANAGEMENT OF SMALL BANK ACCOUNTS IN INDIA-

A SIMPLE COST EFFECTIVE SOLUTION

Banking Institutions in India have a major nagging problem waiting for a solution. Majority of the depositors in major banks like the SBI and their rural branches is of small account holders. They are in millions. The cost of maintaining small deposit accounts has always been too high and is growing even more. On the other hand, it is a social necessity to serve these small accounts with a greater efficiency and safety. In fact, multitude of these small accounts constitutes a very important resource for deposit mobilisation. If the cost of maintaining these accounts is brought down, every bank would welcome them since it would mean making profits while serving a social need and meeting a social obligation.

Characteristically these are deposit accounts of the working class population used for savings and safety. Most of them do not therefore have cheque books but regularly visit their branches to withdrawal cash or check their account status. The personal attention to these accounts is costing the banks more and more. That's their major concern.

PRELIMINARY COMMENTS

I have a very effective solution to overcome this nagging irritant. In fact, it is a solution that would help banks to turn these accounts into a profitable service. More importantly, the solution will also enable banks to bring about a sea change in the quality of service that these hapless depositors get today.

Before going any further, let me make it clear that I have no direct or indirect commercial interest in proposing this solution.

The latest innovation in the Information Technology, the Smart Card, is at the core of this solution. The Smartcard ensures offline transaction security and the current cost is indeed very small and justifiable.

It will also be the first time that the country will deploy the latest in high technology in solving the problem of the common people rather than the elite. It could be termed as a new Technology Mission that deploys the latest technology to benefit the non-elite urban or rural population.

ELECTRONIC PASSBOOK – E- PASSBOOK

1. The Smart card –SC- Technology with an embedded micro-controller is now a proven technology. RBI has accepted Smart cards to store cash. Internationally the ISO and EMV standards are widely standardized. Associated security aspects are fully resolved. The Electronic Purse in the form of a Smart card is implemented in various nations around the world. Low cost Card Personalization Printers are available to personalize smart cards by printing colour photograph and signature of the holder. Both of these are protected by lamination that has issuer's unique hologram. Further, the encrypted Personal Identification Number –PIN- firmly marries the card to the holder. Thus, such a card makes it possible for a Bank to securely identify every Cardholder in any branch.
2. Large banks can today buy, as a large buyer, ISO and EMV compliant Standard Smart card with large an embedded micro-controller chip at below 50-60 US cents! Each bank client – depositor – can be given such a card with appropriate embedded software.
3. Such a 'Client Smart card' can easily and securely hold all the information of the holder and his/her account and thus

could serve as “E-Passbook”.

4. Access to information in such E-Passbook can be restricted only to an authorized Bank Officer/ Teller who is identified by his/her own ID Smart card. Every new entry in E-Passbook will then record the official’s ID. This will give easy way to completely track every transaction.
5. The only Hardware necessary to accept and transact with these E-Passbooks is a simple PC, now available even in every rural branch, or a Network Terminal in a computerized branch. What would need in addition is specific customized software with all necessary security features.
6. The card could include in its memory the thumb impression of the holder stored at the time of issue. Now the well proven technology of biometric identification on a low cost terminal at every branch can marry the cardholder to the card. This will not only eliminate the need for memorizing a PIN but also completely fraud of impersonation of the account holder by criminals. Comparing the two impression is the most secure and easy way to prevent either rejecting the genuine card-holder or accepting the fraudulent imposter.
7. Over 50% of all Account Holders in a bank like say SBI, probably several million, are small savings account holders. Most of these do not even have Cheque-books. All these account holders could be provided with this unique E-Passbook.
8. Transaction Management of all these accounts could be thus fully automated.
9. The Cardholder could be given the facility to deposit or withdraw money in any branch, irrespective it is networked or not.
10. Within hours, every transaction performed anywhere could update the holder’s account in his branch automatically. In case the transaction is done in a centrally networked branch then the info could reach the holder’s branch on the bank network. If the branch is yet to be networked, the information

can go securely on Internet through a router server into the bank network.

11. Since each and every transaction, whether deposit or withdrawal, itself is done on the holder's E-Passbook, misuse or fraud is completely prevented.
12. Such E-Passbook holder can now withdraw the necessary cash from any ATM and the ATM can be simply programmed to handle these transactions appropriately. This will tremendously reduce the workload at the branch and consequently reduce the transaction cost.

BENEFITS AND ADVANTAGES:

The Bank

1. Being the first country in the world, setting an example of using the latest in IT in most appropriate and innovative way.
2. The lowest cost for carrying out massive computerized automation of banking operation.
3. Fast Modernization using the latest technology to benefit the largest number of small account holders and helping cost reduction and service efficiency.
4. Sharp reduction in Transaction Management time and complete elimination of book keeping in case of the largest number of total accounts.
5. To become the first country to offer 'anywhere' banking to millions of small account holders.
6. Making the investments in ATM network rewarding by pushing the largest number of Account Holders to use ATMs for cash withdrawal.
7. Potential to introduce new services based on this extraordinary infrastructure of tens of millions of Card based Account Holders.

The Client

1. Advantage, hitherto not available to any client of any bank in India, to deposit or to withdraw money from one's account

in ANY BRANCH anywhere in the country.

2. No need to memorize the PIN
3. Enabling the Holder to use thousands of ATMs that are poised to be installed over the next few years.
4. Carry with one highly secure ID card with one's photograph and signature to use in other Government Offices, courts of law etc.
5. Feel a modern citizen with ID he/she can flash anywhere.

(China's rapid industrial progress and its labour policy are a mystery to most people in the world. This mystery has to be unravelled to know more clearly about the secret of China's success in becoming a prime source of products for the world and in that process, create a huge number of new jobs in their factories. Is there anything in Chinese policies that democratic India should or can emulate to achieve a similar miracle?. Will such a policy help in stimulating our manufacturing sector?.)

FAST GROWTH OF BLUE COLLAR JOBS— A CHINESE WAY

JANUARY 1, 2004

It should be a matter of concern for us that due to globalisation, a major portion of blue collared jobs stimulated by out-sourced manufacturing has gone to China. The urban middle class in India has been greatly benefited from fast growth of well-paid white collared jobs in IT and IT-Enabled-Services but blue collared jobs in the country have probably declined. It is therefore important to carefully go through Chinese policies. It could offer a clue for Indian employers, employees, trade unions and our government to grow blue collar jobs and also put a sharper focus on productivity on the shop floor. The industrial relations climate in our country has affected pattern of manufacturing growth in the period 1958-92. Pro-worker amendments to Industrial Disputes Act have unfortunately led to lowered investment, employment, productivity and output in registered manufacturing. In spite of lower wages than China, outsourcing of blue collar jobs has not come to us. Sadly pro-worker policies are also associated with increases in urban poverty. This suggests that governmental attempts to redress balance of power between capital and labour can end up hurting the poor. Our managements also carry equal responsibility. Summing up one can say that our managers tend to treat industrial workers like servants rather than helping hands with minds that need motivation. Wherever this is done in India, we find higher productivity and high product quality.

A closer look reveals that there are several factors responsible for

China's success but disciplined and productive migrant workers of China and their imaginative utilization in its industry is indeed its human core. We too have a large pool of skilled and clever human resources and yet performance of our manufacturing sector is worrisome. One major handicap for us to build a strong manufacturing base is lack of operational discipline, responsible managements and revamped labour laws. Another fact provoking us to act fast to stimulate our manufacturing sector and set it ready to deliver efficiently and reliably. The year 2004 will then turn into a great year. Multinationals and other large business groups in the world seem to be rethinking about overdependence on China to source merchandise or set up their own manufacturing in China. Some of them are looking at us as a counterweight to China. We must quickly get ready to grab this fresh opportunity to improve lamentable state of our manufacturing industry. A careful look at realities in Communist China would therefore help.

There is a general belief created here that labour in China is cheap and authorities allow workers to be exploited by companies by making them work for long hours. It is also believed that workers are forced to live in overcrowded and unhygienic dormitories etc. But a careful study conducted recently tells a different story. We need to look at decade old Chinese Labour Laws enacted in 1994 and see its relevance today in India.

In China, the majority of workers in the factories located in urban areas are people from villages in the province. These are referred to as migrant workers. These are temporary residents of the place or city they work. They work in cities while their families stay back home in the villages to which they belong. Each worker has an ID card issued by his/her village authorities. Besides they are given migrant worker's pass when they work in cities. To meet government requirements for migrant workers, a migrant worker must have on their person ID cards, their temporary residence identity card, and an employment certificate. The migrant workers are penalised if they do not have a temporary residence identity

card and are sent back to their village. This card is a part of urban administration rules. Applying for a temporary residence identity card is however simple and costs a little.

Legal working hours are 44 hours a week and 8 hours a day with a weekly off day. An employer may extend daily working hours by two hours but has to pay 50% more for overtime. However the weekly overtime shall not exceed 15 hours. If overtime is on weekends, the rate is 100% higher. In the month of February workers go back to their villages and enjoy long vacation. They are not allowed to bring families along and have to stay alone in company dormitory. Workers with specific skills, engineers and managers are given permission to bring families under prescribed rules. It is however obligatory for the employers to provide free dormitory accommodation to all migrant employees and also provide them meals at the company's cost. This is in addition to monthly wages.

When an employer needs to cut employment due to difficulties in production or business operations, he can do so but the trade union or all workers should be informed of the true situation. An employer may remove a worker; if it is found that he/she is not up to employment standards within the period of trial use, or has seriously violated labour discipline or rules and regulations laid down by the employer; has committed serious dereliction of duty or resorted to deception for personal gains and caused serious loss to interests of the employer or has been affixed with criminal responsibility. A worker can also be removed if he/she is unable to do the job arranged by the employer or is not competent for the job assigned or if the job becomes redundant due to major changes in the company working. In SEZ areas like Shenzhen, the minimum monthly wage is around Rs.3500. The companies have to pay dormitory rent about Rs.400 and the cost of three meals about Rs.2200. Besides this, companies have to pay for employee welfare pension, medical insurance and unemployment cess etc that amounts to about Rs.1500 per month per employee.

Outside the SEZ, the wages are as low as 60% depending on the location. The cost per worker including overtime is almost Rs.10000 per month in SEZ and Rs.8000 per month outside SEZs. Before giving excuse for their failure Indian employers must make a note of this when they complain of high wages in India or give excuse for low wages in China.

Encouraging farmers to work in cities, decreasing population engaged in agriculture, increasing farmers' incomes, and improving farmers' living conditions are policies adopted by the Chinese Government to solve farmers' problems. Time has proved that these policies are effective. Workers do complain about some administrative staff to enforce laws violently and use harsh work styles. We Indians are, in any case, quite familiar to such excesses by government babus in general and the police in particular, especially towards the weak and the poor.

The State control over the situation is through local Trade Unions, all of which are affiliated to All China Federation of Trade Union, ACFTU, for short. A Trade Union of a company is encouraged but not necessary. No other Trade Union is legally permitted. Company workers are not allowed to go on strike. ACFTU disapproves of strike. It believes that SEZ's are designed as China's "windows to the world". From the outset, the theory behind them was very simple: foreign currency and technology pour-in when encouraged by an "investor-friendly environment"; profits and export goods stream-out from the new factories, facilitated by affordable wages, tax breaks and lack of strikes. The whole picture is neatly ensured by introduction of new national Labour Law in 1994. ACFTU wants to ensure that Chinese TUs are not same as overseas trade unions. For example if wages are considered low then TUs in other countries start organising strikes or consider management as their enemy and take a confrontational approach to our work. ACFTU says that it is different and avoids this kind of misunderstanding and conflict. ACFTU explains that in China, trade unions exist to protect interests of the company as well as workers. If serious problems crop up that the local union

branch can't handle, then they must send a report to the next level up but everything has to be sorted out within weeks. A delay in decision-making is strictly avoided.

The safety of workers is considered to be most important. According to national labour and trade union laws, if the ACFTU discovers a working environment to directly affect health and safety of employees and management refuses to do anything about it, then the ACFTU does exercise its right to call on workers to refuse to work under such conditions. This isn't called a "strike" but "refusing to do specific type of work". An ACFTU official told us, "Our job is to keep away from confrontation and find a way of avoiding labour disputes and conflicts by negotiation. Adopting a confrontational approach is not going to help anyone. In places of strike, we are trying to use education, persuasion and mediation".

There are several features of the Labour Law of 1994 that can be of relevance in India without anyway jeopardising democratic principles enshrined in our constitution. Unrealistic labour laws are not our only problem but it is an important one. Large scale chaotic migration to our cities is yet another related nightmare. Lack of infrastructure, corrupt public servants and absurd tax regime further can add fuel to fire that is turning our manufacturing industry into ashes.

The secret of China's success is discipline and not low salaries or unjust labour practices. Discipline is a good catalyst for higher productivity. In Japan it is a part of self-discipline and in China it is to an extent imposed by the state but both lead to better productivity and quality. The employers too have greater responsibilities towards workers while having the essential authority to impose discipline. China ensures this carefully.

China has also realised supreme importance of manufacturing value addition. When rupee worth of steel is turned into a car or a cupboard, the value of that steel becomes twenty rupees. Those nineteen rupees is the real wealth that manufacturing creates. When

a trader sells a rupee worth of goods at two rupees, he creates a profit of a rupee and not new wealth. Trading rotates the rupee to multiply it and create an illusion of wealth.

There is scope for India to be an alternative to China as a manufacturing base for global companies. We have trained manpower; far better linguistic skills, a better knowledge of world trade than China. What is missing is discipline and competitive pressure without which even talented do not give their best.

(The times are changing rapidly. The complexion of retail business is also undergoing a sea change. Retail Chains with a cultivated brand image are now beginning to dominate the marketplace in several retail segments. The independent family owned retail store may soon find itself surrounded by fast growing, well-known competitors operating under heavily advertised brand. They will progressively cut into the stand alone retailer's market and consequently profits would start evaporating. Alternative route to be a franchisee has its own limitation. The Author has a very effective home-grown solution.)

COOPERATIVE BRAND BUILDING BY RETAIL BUSINESSES- A BETTER OPTION FOR A RETAILER TO BEING A FRANCHISEE

For an increasing number of small retail businesses, sooner or later, the choice would not be between growing slow or growing fast but between growing fast and closing down. As a result a few have chosen to ride the Franchisee 'Brand Wagon'. The fear of survival and the greed for a rapid growth is making them surrender their independence; their identity. Many retailers are yet holding on, with a belief that their neighbourhood goodwill will help them to fend themselves from these Branded Chains. Some others are simply ignoring the reality or are too proud to bother.

There is no doubt that succeeding or surviving in today's demanding economy, a lot of retail businesses need to undergo major changes in the way they do business. The store fronts are changing and customers are sensing refreshing friendliness. Still many stores have no resources or courage to invest more. Stores can indeed grow with outside capital but borrowing money isn't as easy as it once was. Lower interest rates are also not going to help. They would actually hurt! Bankers would soon not lend to businesses and assume relatively high risk when they can put money in government bonds and get almost the same interest with no risk? Besides, investing more money alone may not help them in facing competition from the big chain stores. They lack the big buying power and brand equity of their newly emerging

competitors. Their existing names themselves are limiting and do not help profitable growth. Today a name is the first act of branding that serves as a customer hook. This is today's marketplace reality. I believe that there is way for the small retailers to hold their own and grow faster and more profitable without surrendering themselves to Franchise Ventures.

Success with the MTB Plan initiated by me for small scale television manufacturers in mid 80s under the ET&T brand has encouraged me to evolve an alternative that will enable existing family stores to retain their independence and ownership and yet derive benefit of staying under a large umbrella of a professional management. My proposal is ideally suited for speciality retailers like opticians, sari shops, stationery stores, drug stores, toy shops, cloth merchants etc.

The core of MTB Plan involved sharing a common Brand Name and its shared publicity, central procurement of merchandise in bulk, common vendor development, central quality assurance and central professional management of the co-operative. All speciality retailers should come together to form a co-operative venture and share, as its member owners, the benefits of a centrally managed operation driven by professionals. See what an able and committed professional like Mr. V. Kurien did for the farmer cooperative in Kheda District. He took on the militant trade unions who were opposed to the cooperative movement. Amul is India's answer to multi-nationals of the world.

A common umbrella name for every store will help member retailers to capture and address the evolving nature of the business. Creating a brand equity of their own is feasible and that will start with a common name for the shops of all member retailers. Retailers normally have an emotional attachment to the store's name, in many cases their family name. But one should realise that branding your family shop under a common name has many benefits. Understanding the objectives behind a name change is important. Unlike a franchise, under the proposed cooperative

framework you can do so without risking the ownership of business and your independence. Under a Franchise Framework, one loses identity along with the name. Under a cooperative format you share the ownership of the brand. In today's highly competitive environment, the strongest brands are those that transcend their speciality service to form an emotional connection with the customer. The key in name creation and ensure that it creates a distinct identity that becomes an icon and aids the communications campaign to support the new name. One has to understand that a store's new name is a smart opportunity to communicate a new or refreshed point of view.

In case of a franchisee option retailers require giving up control in the decisions and strategy for growth. You as a franchisee will not have a vote in management decisions. Risks are so much higher than forming a professionally managed co-operative. A Retailer's co-operative, if professionally managed, would prevent foreign Franchise Operations overtaking India. It will give coop members a strong brand umbrella to work under and give muscle to buy products with high quality and extremely competitive price. It will also sharply enhance their profits by realising better prices normally enjoyed by branded merchandise. It will help retailer avoid the problems of slow growth, the problems of outside capital, and even the problems of finding the right employees.

Franchising may lure you by paying the rent, buying the inventory, paying the employees and even provide you the working capital but the price you would finally pay is loss of freedom and ability to get away and stand on your own again.

Franchising is just one growth system that allows businesses to expand exponentially but a better option will always be a Retailer's Cooperative. The strength of a cooperative is that every retail outlet is owner managed and therefore highly motivated. Good management training will also help to develop professional administration of the store and high quality customer relationship.

A retailers cooperative has several advantages like lower risk,

highly enhanced buying power and professionally evolved strategy for running your business better. A Lower risk because the Umbrella Cooperative shall accept most of the legal and operational risks involved in running a business, you assume less risk at the unit level. Far superior Buying Power as a Co-operative of few hundred retailers, negotiating power on products, supplies, and services increases, helping lower costs, better logistics and higher quality assurance. Finally you have professionally structured strategy for running your business better. Cooperative can use talented professional executives who focus on the big picture issues without getting bogged down by exhausting day-to-day administration.

There are several other benefits and here are few that easily evident.

1. Such a cooperative will be beneficial to all member retailers since they are spread in various localities serving the neighbourhood families and are never in competition with those in other area, e.g. the one in Bandra is not competing with the one in Andheri or the one in Dadar.
2. Most of these are family owned, decades old shops located in key business districts paying very low rents and having small overheads.
3. Even though profitable, managing a single retail outlet is a struggling activity to compete with those in the neighbourhood.
4. Many need Continued Education and business information enrichment.
5. The cooperation is limited to the use of a Brand Name, store front identities, promotional advertising, the purchase of the merchandise and continued education.
6. Each retailer uses a common brand name with a common logo and the Store Front Layout designed by a capable group without disturbing their individual ownership.
7. Financial Benefits as well as investments in brand building, store design and central purchase infrastructure of

cooperative umbrella are shared annually in relation to individual store's performance.

8. Such A Speciality Retailers Alliance will become the country's largest chain store and therefore the most sought after by those manufacturing the products stored for sale.
9. A Cooperative can introduce proprietary designs and develop as a product under the shared brand.
10. Members will share the best advise on business development as well as Customer Relationship Guidance.
11. As cooperative grows in membership grows, the Alliance gets progressively stronger and more profitable for the individual members.
12. The low overhead costs of the member shops, motivated proprietary management of each outlet as against the hired management and strengths of unified purchasing will give the cooperative an edge over the top heavy multi-location stores modelled over an international franchisee concept like McDonalds.

(Since mid 1995, the Author became the President of India China Economic & Cultural Council, New Delhi. ICEC Council works closely with Rajiv Gandhi Institute of Contemporary Studies, RGICS, to promote comprehensive India China relationship focussed on a wider civic society interaction. ICEC Council is neither a Chamber of Commerce nor a Trade Promotion Agency. It regularly brings together Chinese and Indian professionals in various fields to form closer alliances. ICEC believes that India plus China approach will bring global economic and cultural leadership to Asia within a decade or two if we work on it as a theme. ICEC President convincingly presents his case in this article.)

INDIA + CHINA POLICY IS A GOOD STRATEGY

India and China started to progressively draw closer since the last few years. As a result, the first major initiative came in 2003 when Atal Bihari Vajpayee, then India's prime minister, pledged during a visit to Beijing to respect China's sovereignty over Tibet and not to allow "anti-China political activities" in India and curb the activities of Dalai Lama led Tibetan government-in-exile in Dharamshala. This was provoked by common interest in trade, regional stability, the current threat of Islamic extremism. That process has continued and the present congress led Government with even greater enthusiasm. In April 2005, after a summit between Indian Prime Minister Man Mohan Singh and his Chinese counterpart, Wen Jiabao; India and China announced a new "strategic partnership" pledging to resolve long-standing border disputes and boost bilateral trade and economic cooperation between two. China formally abandoned its claim to Sikkim and presented Indian officials a map showing that area as part of India. The two governments also agreed to address age old border dispute along our common border promising to resolve all such disputes through peaceful and friendly consultations. They signed an agreement to resolve the border dispute on the basis of historical records, geography, security needs and the interests of people who live in the area, among other factors. Both the countries also are widely interacting for trade, economic cooperation, technology sharing, civil aviation and other matters. Thus has begun our

bilateral strategic and cooperative partnership for peace and prosperity. In November 2005, we went further and we both jointly agreed to celebrate 2006 as the Year of our mutual Friendship.

But there are hiccups like the recent decision of the Home Ministry to stop Chinese from certain projects on account of security considerations is negating the spirit of mutual agreements that we have been signing. This displays our mistrust giving a big jolt to all our recent initiatives. One might conclude that what transpires in the Ministry of Foreign affairs does not seem to reach our Ministry of Home Affairs. Right hand of our cabinet does not seem to know what the left is doing.

Our security concerns are indeed baseless if we go through the history unemotionally. China's friendship with Pakistan or Burma may still be a cause for concern but our border conflicts indeed arose out of an old British blunder. Even China's love for our neighbours is probably more reaction than action. It relates to our former mutual distrust arising out of 1962 aggression and our military defeat due to lack of preparedness. The roots of our border dispute however extend back into the 19th Century, when both China and British India asserted claims to many remote mountainous North East Frontier Areas across Indo-China border but never drew a line. Military confrontation between the two in 1962 was an unfortunate outcome of different perception of the Chinese leadership of those times. It is also significant to note that China had then declared the ceasefire unilaterally. It must be noted that, from time to time, both China as well as India have pointed out that they have never occupied 'foreign' territories during their long political history of thousands of years and therefore never been aggressors. Today security threat to us from China is no more than many other nations including the US. Border conflicts always are characterised by emotional issues and reactions depend on perceptions of those ruling the two countries from time to time. That's why the military expeditions and intrigue of 1962 conflict. Today times are different and there is enough historical evidence that China has no imperialistic ambitions.

Frankly these two rising Asian powers which together account for more than a third of the world's population, have no choice but to remain together as friends. Our cooperative relationship has significant global implications, given the vast economic potential of India and China and our growing need for energy and other natural resources. Both India and China have the responsibility to reassure their Asian neighbours our new understanding as friends would enhance global peace and more equitable economic growth without any global threat to others.

It is clear that closer ties between India and China will not be achieved without opposition, visible or otherwise, from a few other countries. Pakistan, for one, would not be happy with closer ties between us and its friend. The United States and other Western powers may also become uneasy with an alliance between two nuclear powers whose joint armed forces would in effect become the largest in the world. Add to that the growing economic success of both. It can make the Western Powers uncomfortable. China India Friendship therefore has no global appeal. The current threat perception could be therefore of foreign origin.

Besides political and strategic considerations, there are more compelling reasons for our two countries to be not only friendly but culturally, socially and emotionally closer. Growing social and cultural interactivity between India and China is almost a prerequisite for nurturing closer cultural and social ties. This will reveal to both the people the striking similarities between the two as civic societies, in terms of social psyche, their traditional frugal lifestyle and deeply ingrained cultural traditions. Thoughts of Gautam Buddha still prevail amongst the two societies as a guide. There are better chances for our civic societies to come together since the benefits of its economic growth and growth of private ownership in China is rapidly changing social scene. Even if it remains unsaid, the democratic trends in its governance are increasingly visible. There is a growing freedom to civic society as also its people's growing affluence.

There are other vitally important opportunities for both to make IT more Asia-centric than US-centric. Mr. Wen Jiabao, China's Prime Minister, during his visit to Bangalore said, "If India and China cooperate in the IT industry, we will be able to lead the world. It will signify the coming of the Asian century in the IT industry." In the area of hydrocarbon fuels too, India and China need to keep in mind the big picture – the evolution of an Asian market for crude and products with long-term supply contracts and stable prices, and, eventually, an Asian Energy Union. Trade between the two countries came to \$17.5 billion in 2005, compared with about \$22 billion between India and the United States. India and China also share interests on many key trade issues. Tariff barriers, access to developed markets, environmental policy and patent protection are major irritants in both countries' relations with the G8.

It is growingly realised that in the long run and for several valid reasons, both India and China are better off as neighbourly friends on the either side of Himalayas, rather than being antagonists and suspicious of each other. Time is right for us getting rid of 1962 baggage of mistrust since times now are completely different in economic and political terms.

Himalayas or absence modern communication did not stop massive progression of Buddhist Philosophy in the Chinese continent. Why would it pose any challenge today if only we approach Sino-Indian partnership as the theme to make the 21st Century Asia-centric. I will close by saying that there is more to gain for both as "India plus China" than "India versus China".

Five

Some Convictions

(The author wrote this article in 1978 for “Electrotechnics”, a monthly journal he had been publishing till 1981. The sentiments expressed are valid even today, over 25 years after its publication and in a large measure applicable to the functioning our government and the attitude of its administrators.)

ME- AN ENGINEER

To me, being an Engineer has always been a source of great pleasure. Over the past fifty years, I have looked for and have been lucky enough to face creative challenges that demand wide-ranging engineering skills on one hand and building a motivated team around me on the other. It has given me a very personal sense of fulfilment and pride every time I succeeded. I must clarify that my sense of achievement had little to do with the money involved or the size of the business at the end. The pleasure was always about finding right solutions and having a team around that shared similar sentiment. The satisfaction at a personal level has been the realisation that in making this continuous search, I am progressively getting to be a fully functional human being.

On the shop-floor or in our labs there was no hierarchy. We were all team-members; each one contributing his ideas to seek the finest solution to the problem on hand. To find a unique and outstanding solution has been an obsession with everyone. Contributing an idea to reach the most appropriate solution was such a great pleasure that thinking of a better way of doing anything on hand became a delightful pastime. While driving home or even while sitting on pot, mental modelling of something continues even today. On many days, I have left lab late in the evening with a sense of satisfaction bordering on pride, only to return impatiently the next day with fresh thoughts to change, correct or improve. Sometimes a junior would defy my suggestion and provide an even better solution. In that manner, how much I learnt and from how many – I can’t even recount.

We never worked to invent or publish papers. However what we wanted to achieve often needed a lot of ingenuity and innovation

on our part. The challenge often was to beat competition with a technically superior product of a better quality, at the lowest possible cost and with design features consistent with current state-of-the-art technologies. What we finally developed as a product was a real thing and not an abstract idea. The reward was when the buyer scrutinized it and felt happy. Publishing a paper on what we achieved in a technical journal was, to me, less relevant. The only paper we ever used was the one on the drafting board or for record keeping with process description and dimensional drawings. Free hand sketching was a common art to communicate within the team. Making a lovely freehand sketch to give clarity in understanding was a matter of pride. It multiplied several fold when the tool-maker could follow it with little difficulty. I felt earthier, more human and warmer on the shop floor than any other place. Being a functional engineer is a good feeling for one in a profession of searching solutions.

If a customer smiled and bought what we offered, the reward was both spiritual and material but what satisfied me was enhanced joy of making a contribution. The most enjoyable and exciting experience was when an idea from one field could be cross-fertilized in another. Investment casting technique that I learnt in my father's dental laboratory came handy to produce a difficult component needed in a Signal Generator. The designer's mind is like a dry blotting paper; absorbing every bit of helpful information. Walking through exhibition alleys abroad is one such absorbing experience. That's when one gets ideas through observation and informal chats and questioning. That's where one derives the confidence to try out ideas that needed some correlation before attempting actual experimentation. Designing even a complex product would then pose no insurmountable problems. In any case, it has always been exciting to try.

When it comes to product development, men, their ingenuity and their hands-on experience are invaluable assets. Money alone is not enough since, like happiness, it can't also buy creativity. Money without knowledge and motivation leads to nothing worthwhile.

There are many rich people with no imagination and having no desire to seek challenges. In fact they seem to just remain alive till they die. What one does with the money decides one's absolute value. In fact, too much of money is known to kill imagination. Its shortage helps imagination to flare up. Consider Edison and his inventions. That's when values in life get into their right place. A close German friend of mine always claims that only replacement for money is imagination and that for any difficulty is enterprise. Even Albert Einstein had said, "Imagination is more powerful than knowledge".

Visiting young entrepreneurs, enthusiastically attempting to develop products with negligible support from anyone and having nearly no infrastructure, has always given me mixed feelings. On one hand it is always a pleasure to share with these young men their sense of achievement and their trust in future, and on the other it is saddening to see the way we in India our government babus discourage enterprising youngsters with their unimaginative and insensitive handling. Our industrial policies are appalling and seem to be designed to kill enterprise and extinguish enthusiasm in entrepreneurs. The success of a manufacturing business hinges around a product. A perfect product at a right price is a passport to success, not the industrial gala or a bank loan. To start a business by buying first factory premises is an absurd application of money. In a state like California, which is almost fanatical when it comes to environmental protection, even today an electronics start-up can be started in one's own garage. But not in Delhi or Bombay! We seem to have an uncanny knack to kill enterprise through unnecessary and pointless regulations.

I feel sad that though we, in India, have had some excellent, world renowned scientists, we could, however, groom very few inventors. With all our claims of being the nation with the third largest technical manpower in the world, we neither have a single technical invention to our credit in the world; nor do we yet have a single product that can be proudly claimed as Indian; not even in computer software. For that we have to go to our pre-independence

history of science. It was in 1928 that Sir C.V. Raman got a Nobel Prize. After 1947 we have drawn a blank. All Nobel prizes won by Indians after independence have been honoured for the work they did outside India. Dr. Khurana and Chandrasekhar lived and worked outside India. What a shame indeed!

Finally I wish that, at a national level, we realise the urgent need to consciously remove systemic defects which are hurting the spirit of Entrepreneurship. We need to create an environment that would blossom creativity, support innovation & that would throw challenges to the talented amongst our young men.

(This is the text of the “Second Ramu Pandit Memorial Lecture” delivered by the Author to Students and Faculty Members of Engineering Colleges in Vallabh Vidyanagar in Gujarat on the 25th September 2005.)

ENGINEER- THE CHANGE AGENT

Let us first understand as to who is an engineer. Every year Indian Universities deliver a large number of young people with an engineering degree. In reality only a few of them however are ‘engineers’ in thought and action. An engineering degree doesn’t make one an engineer just as every Ph.D. is not a scientist. For that, one has to be possessed by science and technology. To be an engineer one needs many more attributes like dexterity, searching mind and an attitude to change things for better. I have seen many outstanding engineers who had no formal degree. A good engineer or scientist is characterised by person’s mindset and attitude. Consider Darwin and Einstein. Both were quite undistinguished at school but revolutionised biology and physics with theories of evolution and relativity. Often just being creative is not enough. A creative person lacking in application can rarely deliver. Another prime requirement is motivation to continue to build up a knowledge base. This needs sustained curiosity, tenacity to keep learning and an urge to venture. Real engineers have always been solution providers. Their thinking is divergent and they get intrigued by uncertainties.

There is also a difference between a scientist and an engineer. It is like the difference that exists between a scientific discovery and a technological invention. The former, somehow, is often considered superior in value. This is due to emphasis placed on pure sciences. Discovery is a great contribution but it reveals new knowledge about something that already exists in nature. On the other hand an inventor creates a device or a substance that didn’t exist previously. Penicillin is a discovery but television or plastic is an invention. Scientists discover and engineers invent and in many cases the two are indistinguishable from each other. Scientists believe in analysis and reach to an elemental level. Engineers

integrate that knowledge and harness scientific knowledge discovered by scientists to invent new ways to be better. A true engineer, like good scientists, relies on passions, impulses, urges and intuitions in addition to his engineering knowledge. His thrust is however on providing solutions than on just satisfying curiosity. That's why we, engineers, pride ourselves to be 'change agents'. A practising engineer is neither a mechanic nor a technician. He is a problem solver and uses the tools of creative designing. Engineering, in that sense, is the art of science and makes practical use of the knowledge of pure sciences.

Professionally engineers are indeed agents of change and we have proven it over the last two centuries. Engineers, during the entire 20th century, have unveiled for the world, month after month, technological marvels making prospects and the future for mankind increasingly bright. Take the case of transportation; Engineers gave to the community, trains, ocean liners, subways, automobiles and aeroplanes. For communication, our predecessors and contemporaries invented telegraph, telephone, phonograph, movies, radio, television, video recorder, teleconferencing, global paging and whole new world of computers that with each passing year, gets more powerful, more compact, more portable and more affordable. Then we built bridges, tunnels, dams and skyscrapers as construction marvels. For the common man, engineers offered sewing machines, typewriters, bicycles, electric light and heater, air conditioners, washing machines and so forth. Dr. Hatoyama of Sony Corporation paid engineers an unusual tribute when he wrote in the Japan Times in June 1978, "the difficult we engineers do immediately, the impossible takes a little longer".

Since the last 50 years however the social progress achieved by engineers of the world is being critically reviewed. Human society over the last two centuries became bold enough to try and overtake nature. The significance of the way modern society fiddled with nature and its ecological consequences are progressively becoming clear. Today we are paying a heavy price for exponential Growth in the consumption of natural resources, increase in pollution,

growth in population, loss of green cover and the ozone layer in the world due to the material progress caused mainly by engineers. In India, we engineers added fuel to that fire. We are responsible for making several unpardonable errors during the last four and half decades. The pollution, of at least the river waters, should have been avoided with appropriate care. During these 45 years the forest resources have depleted at 4% per annum. Poor quality public infrastructure that we helped create has become now a handicap. Engineers have always been change agents. It is now a challenge for us to mend things and do so speedily. Degradation of our work culture in public work is indeed a matter of shame. Being an engineer has no more remained a matter of pride.

A large number of young men are getting into this profession and they would suffer due to the history and legacy left behind my generation during the last 60 years. That needs them to take a different course consistent with the liberal, competitive, global industrial scene unfolding in India. It is now their moral responsibility to be 'The Change Agents' for creating a new India.

The governments are still manned largely by our generation. Actions are being taken by them through policy changes but they are limited merely to cleansing of the fiscal, economic and commercial spheres of national governance. Measures to combat social, ecological, cultural and ethical aspects of national decline are still missing. Unfortunately all these are interdependent and they directly affect success of the economic and industrial reforms. A concurrent thrust and awareness is vital for bringing about a comprehensive change. Efforts need to be collaborative. The time has come to change from our old ways of liberal and unmonitored public spending, politicising social inequalities and state control. Task is to get rid of inefficient and closed economy and it is not easy. Our generation of engineers have got used to inefficient ways of the license-permit regime that prevented competition even within the country. Time has come for creative and courageous entrepreneurship to enable us to survive foreign competition. For this, engineers from all the disciplines will have not only to be

change agents and share the responsibility to bring about the transformation but also become the whistle-blowers. That is the need of the day.

We, of course, can't forget the fact that engineers are after all; people made of the same clay as others. Amongst young engineers too there are radicals, hawks, doves, idealists, pragmatists and such like. But more and more amongst you will have to raise the whip on industries that pollute; the bureaucrats and officials who turn a blind eye to actions that would harm the innocent and on politicians who perpetuate undesirable projects. Pledges of virtue have never solved any problems. Technical truths, like moral truths are elusive and therefore, we have to rely on an aggressive process. One can only hope that engineers in public service will choose to be public spirited. Over 80% of the towns in India, that are lucky to have water, get it polluted enough to be classified as 'potentially dangerous'. Outbreaks of diseases attributed to drinking water are happening practically every week.

Technologists and Engineers certainly can find solutions that are ecologically friendly. We need to understand and assure that progress and development is possible without polluting or going against the grain of nature. In the 'Limits to Growth', the Club of Rome's report of 1971, it has been noted that "Technological Advance would be both necessary and welcome in the Equilibrium State". Indeed conservation itself is an engineering solution; like promoting forestry, horticulture, sanitary engineering and other endeavours dear to the heart of environmentalists. Thus engineers, as informed professionals, have a dual responsibility; as a solution provider and as a whistle blower. Current misconceptions about progress and development certainly demands that we, engineers, have to have social and ecological sensitivities and need to alert the community as often as necessary.

(This is an Extract of the Convocation Address delivered by the author in 1992 to those graduating from the Indian Institute of Technology in Kanpur. Students can benefit from his thoughts even today since he has put forth some refreshing concepts for them and the faculty.)

CRYSTAL GAZING

On this Convocation day, you, my young friends, shall acquire a special distinction to call yourselves Engineering Graduates of the prestigious I.I.T., Kanpur. You all are among the few brilliant students in this country to have educated yourselves in this renowned institution known for its excellence in Engineering Education. You have had a unique opportunity to learn from some of the most eminent teachers and researchers in this country. Kanpur is a major industrial city in northern India and in its backdrop you must have enriched yourselves a great deal during your graduating years. Let me congratulate you all on your deserving success and wish you a rewarding career as engineers, engineering managers and researchers.

By now, most of you would have made decisions about immediate career objectives and you must be looking forward to pursuing them with great expectations and anxious excitement. I am glad to have this opportunity to address you at this juncture and share my thoughts with you. I wish to put before you some basic concepts and make some observations that could help you irrespective of the options you might have chosen, ranging from continuing your education here or abroad to preparing yourself for an entrepreneurial venturesome life after some job experience.

Someone has defined 'Engineering' as the art and the science of making practical applications of the knowledge of pure sciences. In that case, we, the engineers, are not scientists but are Problem Solvers of practical value. People with soiled hands and innovative minds, some, like me, are lucky to have opportunities, almost continuously, to face creative challenges that involve the use of a range of engineering skills to provide solutions and managerially implement them to deliver results. Today, every engineer needs to perform managerial functions and continuously acquire new

skills. These involve equipping oneself with multi-disciplinary expertise in adequate detail and continue learning throughout one's professional career. That approach in itself can make everyone of us a Functional Engineer, giving us a sense of fulfilment and a sense of professional pride that goes with it.

My friends, you have entered I.I.T. Kanpur through a fiercely competitive process. Your merit as a serious scholar and your intrinsic ability to learn was established before you entered this institution. The tutorial guidance and opportunity to work in well equipped laboratories have honed up your skills and given you specialised knowledge in your field. You have earned your degree through sincere and imaginative efforts. But I am sure, like I did 36 years ago, you would realise that becoming an engineering graduate and graduating to be an Engineer are two different matters. Your real world education will begin from now on. Your decisions on choosing a career and your attitude towards life will determine your future as professionals. A positive attitude always yields dividends.

Engineering technologies are dynamic. They are also very glamorous and enticing. They are also the reason why we have witnessed drastic upheavals in the world. Most of them are characterised by fast developmental growth on one hand and fast obsolescence on the other. There are exceptional young role models like Steve Jobs of Apple. It is tempting to fashion one's career by being driven by glamour or by exciting modernity. But such an approach does not always succeed. More often than not, it is known to lead to frustration and undeserved failure.

All of us are unique. There is no one else like you. You have an individuality of your own and you have your own points of excellence. We all have a predisposition or leaning towards a certain functional area. Make a career choice that suits your personality and make up. Trust in yourself that is important. Your personal career development must become monetarily and mentally satisfying to you and that would happen only if you listen

to yourself and not get influenced by external pressures. For instance, do not get bogged down by the call for sacrifice and such empty political slogans. These self styled idealists may try to appeal to your national pride but remember almost all of them have their children settled abroad. Be honest and listen carefully to your own mind. There is nothing wrong if you go to work abroad. The talk of “Brain drain” is humbug. Rajiv Gandhi rightly called it “brains trust”. My friend, Shri Abid Hussain, our Ambassador in U.S. puts it more aptly when he said, “Brain drain is better than brain in drain”.

Being at the right place at the right time and with the right expertise are three ingredients of success for an entrepreneur. Even for a professional career, your success will be linked with what you have in terms of expertise and experience and where you are at a given moment in relation to opportunities and challenges. For an extraordinary success such ‘locational’ luck is vital. Such opportunities are exceptions and not always predictably reproducible. So my first advice to you is not to get overawed by glamour or mere modernity of the subject. What is necessary is to look inside, introspect & realistically estimate the strengths and weaknesses. Opportunities & threats would then become more clearly visible. One could then choose a direction that will take one from strength to strength and thence to success.

In the foreseeable future, India will have to remain a manufacturing nation. There will be a rapid growth of the service industry but to a great extent it should, remain a manufacturing nation. We will need to re-orient as a value added exporter to become a source of products for the world. The key factor, for the young engineers like you today, will therefore hinge on you becoming able manufacturing managers. In my opinion, the time has come for engineers to don blue collars and rub shoulders with the workers in order to master the art of manufacturing management. Japan, to an extent Germany and France and the countries around the Pacific-rim like the four Asian tigers are what we might call manufacturing countries. They were characterised by their prowess

in manufacturing and export to the United States. Now China is getting there. On the other hand, U.S.A. and some countries in Western Europe are countries that have a predominance of service industries. The manufacturing Industry and service Industry are two different animals. Different skills are needed to tame them. Business Schools like Harvard, Yale and our own I.I.M.s are not suitable institutions to create managers to manage manufacturing. Please note that Japan, Germany, Korea & Taiwan have no business schools at all. However they have practically achieved phenomenal success. No IIMs can produce or train such talents. Manufacturing managers are home grown. They are company groomed. Down to earth, company bred & in-house groomed managers reach great heights. Every successful enterprise in Japan, Taiwan & Korea has scores of such engineer-managers. They always don overalls and spend most of their time on shop-floor, sharpening their skills to produce zero defect products. Tomorrow's India will need such Engineering Managers. Business Managers from Harvard & Yale must stay in the U.S. and those from the I.I.M.s could migrate to save the Indian Industry. These are going to be our challenges during the next 20 years. Your growth and success are linked with your ability to master arts, techniques & skills.

I want to assure all the young men and women graduating today that they can look forward to an exciting and fulfilling life as an engineer to start with and as an engineering Manager soon thereafter. Please remember that your real engineering education might be starting today. Real life challenges will soon make you think and apply what you have learnt for problem solving. This kind of work should make engineering a rewarding profession and will give you essential pride in delivering results.

Sometime ago I had listed ten key attributes for a successful engineering manager. In my opinion these attributes provide the key to your success.

One: Ability to work in a Team and being sensitive to the issues of participation, delegation and trust.

Two: Being thoughtful & discrete - knowing one's own job responsibilities and clarity about those of all team mates.

Three: Being fully involved and dedicated with tact and the patience to work together

Four: Having a sense of personal accountability with courage to admit one's own mistakes.

Five: Ability to collaborate, to listen, to understand and to express ideas & concerns effectively and openly within the team.

Six: Ability of acquiring, analysing and using new information to an advantage and casting off irrelevant or outdated knowledge.

Seven: Skill in Time Management that really means managing distractions.

Eight: Ability to convincingly sell ideas within the organisation.

Nine: Ability to move with the times in response to dynamics of natural environment and initiating constructive changes.

Ten: Computer Literacy – using computers oneself for processing and retrieving information and its presentation for its effective use.

I am sure that these **ten** attributes are easily attainable for young men of your intelligence and training.

Finally, for the benefit of your faculty, I have some comments to make on the type of engineering education imparted in this country. These comments may sound rather critical but they are made with an intention to provide healthy feedback. I have had occasions to look closely at our engineering education and I fear that our engineering training has, over the years, become more of science education than developing engineering aptitudes and insights. The kind of knowledge dispensed in class rooms does not go much beyond mathematical analysis. The practical physical aspects that develop engineering comprehension in a student's mind appear

to be missing. Students have turned exam oriented. They memorize sets of facts, perhaps appreciating them as logically linked derivatives. Real life evolution of scientific and mathematical theories and associated romanticism of engineering manifestation of science are rarely even stressed. I have had the occasion to question graduate students from the I.I.Ts who indeed are our academic cream when admitted but unfortunately they continue to remain academic even after their time in an IIT. That is not good. They appear scholarly but without the awareness of logical, physical and real life manifestations of sciences. I am talking neither of hands-on experience nor am I expecting to turn out readymade engineers. I am just requesting to review, on priority, our pattern of curricular training in I.I.Ts & engineering colleges.

I venture to suggest a few possible options to improve the state of affairs. We can get outside faculty of practising engineers in the field just as they have in medical education. We need to step up applied research activities of the faculty members and expand role as industrial engineering consultants. We could give greater accent on student projects turning them with greater thrust on processing or product engineering. We should look at the concept of sabbatical leave for the teachers every three years and exchanging staff amongst the I.I.Ts. We should also have constant interaction with the best faculty in Asia and the United States. We could create (interactive training) to bring real life engineering into the class-rooms. There is also a need to include courses to provide in-depth knowledge about engineering materials and processes of conversion.

Some of these matters are well recognised and are often discussed but implementation is slow. Support from the government for higher education, I understand, is going to decline. That would call for greater imagination, a type of imagination that can act as a potent resource input to help optimise utilisation of monetary resources. I.I.Ts have enough talents to provide essential intellectual inputs. We have to make use of such intellectual inputs.

Let me close here and once again express my hearty congratulations to all of you for completing your graduate engineering course at this premier institution. There is created a strong bond here and you will derive perpetual benefits from this. My own graduation teacher, Prof. S.V. Chandrasekhar Aiya, whom we lost very recently at the age of 83, was my continuous well-wisher & guide for the last 38 years. That bond was snapped only by his death but memories of his teachings will keep inspiring me until the end. You can be sure of similar support from your teachers too. One thing is certain B.Tech from I.I.T. Kanpur shall prove to be your passport to a bright and innovative future if only you have the enterprise and you refuse to rust away.

(Thoughts expressed in this article are the ones Author has used as his theme while delivering formal addresses in colleges as well as while chairing functions in several Chambers of Commerce and other institutions.)

FRUITS OF LABOUR

Money by itself is meaningless especially when, in addition to wisdom, you have enough of it to appreciate that fact. Ever since money was invented, all the wise men of the world have always been advising not to chase it. Every religion preaches the futility of craving for material wealth. Everyone knows the long list of things such as health, happiness, immortality, love, selfless friendship, honest men and women etc that money can't buy. The Beatles also had their own perspective on money with the famous, "I don't care too much for money, coz money can't buy me love." Yet the pursuit of money is what keeps millions striving for it, especially in business and trade, and going to any lengths to get it. It is also what most people keep working - to get more and more of it as if one could never have enough. Having money helps hiding shortcomings like talent and virtues and keeping an attractive façade. It also helps to lure the ill-informed, naïve and greedy. It buys physical comforts and therefore attracts the masses. Fear of losing it is so great that, for its sake, people don't hesitate to break families, hurt relationships, destroy friendship and maliciously fuel enmity. Greed for it takes people apart. Even solemn occasions like marriages are almost always preceded with a prenuptial agreement like dowry, some of which tragically end in cold blooded killing of young brides – all for the sake of some rupees!

Actually money is primarily a medium to measure other things. It is a way some people value themselves and others. 'He is worth over a crore', they say. Some measure success with it. 'He has done very well; makes two million dollars a year'. Some brag about their wealth. 'I can buy you out', they would say in anger to someone. For some it represents success and personal value: "I make five lakhs a year, and I worked hard to get here and I'm worth every paisa of it." For many it is a means to gain or retain

power - the ability to move the earth if necessary to get what you want. Indian politicians are measured by their hidden wealth. They feel more powerful with their pocket warm and deep. They feel strong when their money power gets things done or help them achieve a position of power. They enjoy even more as they deprive others.

For most of these people, the futility of chasing money comes too late. At the fag end of their life, they realise that in their quest for possessing more and more, they started chasing money and somewhere on the way money started chasing them living them no time to live and love life. Restlessly they try to make amends. An aging body and hurt acquaintances blunt those pathetic efforts. It is painful to realise that people are waiting for you to go. Then you don't give; they take. Oh, that pointless chase...

For a majority of common people however money is a need to daily living and long term financial security. Common people buy r groceries, pay rent and school fees, make car and flat monthly payments, and struggle to save for retirement through money. Importance of money to a person depends on his or her cultural heritage and early grooming. For example, if a person is raised in a culture or family in which accumulation of money is the primary goal then that person integrates that into his personality as an ideal. Possession of money to such person is primary and not what it does or can do. The son of a shop owner I knew was sick. The physician attending on him suggested some investigations that were expensive. Based on the reports, the physician found nothing seriously wrong with the boy. The shop owner, to my surprise, felt sorry that a lot of money was wasted!

Some with wisdom understand money and its role in life. Even those not rich, carry themselves with remarkable dignity. Their knowledge and wisdom they possess and share outshines money. Their status in the community is high and earns respect from everyone that many with money strive for. If they are rich, they wear their wealth with great elegance. They live well but find

showing off their riches obnoxious. Their choices, their behaviour and their words easily differentiate them from the neo-rich who are mostly preoccupied in taking revenge on their days of deprivation with violent greed. These admirable souls are compassionate of sufferings of others but prefer to be anonymous donors. For these men, possession of money and earning more is not a goal. Money to them is merely a tool to finance creativity in art, science and philosophy. For them money is just the means to an end and not end in itself. They use it for finding solutions. Money does not control these people; they always remain in charge of their life. When they pass away, they are missed because; unlike in case of the greedy rich, the precious possessions that these people have, also go with them.

31st January 1986.

(The author's parent's house in Pune had a significant but long name; Karmanyewadhikaruste ma faleshu kadachana. Loosely translated it means do your duty without an eye on reward. He believes in working smart and treats his work as a reward in itself. So when he was offered rewards at a cleverly concealed price tag, he reacted the way he would. He or his company never 'applied' for any award and thus never got one.)

FOR SALE- AWARDS AND HONOURS

If you have been a little bit visible, prima-facie an achiever of some kind, possessing a 'structured' good looking bio-data, have an urge for public gaze and of course, have some 20,000 rupees to spare, you could look forward to a respectable looking award. I didn't believe one could, but I was myself offered two of them, in the last six months. Each would cost me just about Rs.20, 000/- Cheap; don't you think? Had I accepted, it would however lead me to invite about 500 others for a celebration. Of course, what's the use of an award without showing it off to a circle of admirers and sycophants!

The first offer came from Delhi (where else?). It was from an International Friendship organization claiming patronage of an ex-Chief Justice of India and a couple of other ex-Chief Justices of High Courts. Besides them the society mentions a galaxy of retired bureaucrats and ex-MPs as its patrons. They seem to have honoured, in the past, a former Vice President of India, some Governors, ex-Ambassadors, ex-Chief Ministers, professionals, Delhi intellectuals, successful Medical Doctors, Industrialists etc. They wrote to me in November, 1991 that I could join these 'galaxy of eminent men & women' and receive the coveted award instituted by them. When the 'offer' arrived I was out of the country, my office, eager to please me, promptly sent the requested bio-data. On my return, there was an urgent call from the organizers. My award was ready, the only hitch between me and the award was that I should pay Rs.20, 000/- to become a member of the society.

This was one of the two reasons why found the offer obnoxious. The other was more revolting. They wanted me to narrate them my own achievements! Needless to say that I wrote back saying that they could save the Award for someone else who is 'eager' for it.

I always had a lurking suspicion that only Delhi could breed such bright ideas. But I was wrong. Just last week Special Executive Magistrates' Directory Committee presided over by an Honorable Minister of the Government of Maharashtra was kind enough to find me eligible to receive the 'Rajiv Gandhi Gold Medal', along with 35 others, on Rajiv's first death anniversary. Poor Rajiv, these guys simply won't allow even his soul to rest in peace. They were also generous and agreed to also publish my name in their publication, 'Who's Who of Eminent Persons of India'. That was incentive enough to lure me further to accept. In the last paragraph of the 'offer' letter, however, the organizers came straight to the point. They wanted me to remit to them a sum of Rs.21, 000/- towards the cost of the Gold Medal! However, they were careful in making it clear that it was to be a voluntary contribution. A State Minister was to be the Chief Guest and another State Minister was to preside. The guests of Honour included the Madame Sheriff of Bombay amongst others. A Grand gala function was planned. The great Dignitaries were to attend and present to me the "Rajiv Gandhi Gold Medal" The Damage is in the region of t Rs. 21,000/ - Others to be honoured included many prominent names and leading social figures of Bombay. I had occasionally seen their names in Society, Bombay, Savvy, Gentlemen or such other mags or rags. 'I don't belong here', I said to myself, and haven't bothered to reply.

In 1983 I had lost my chance to get another award, "Udyog Ratna", at the hands of our former Vice President Shri B.D. Jatti under similar circumstances. At that time I refused to pay and insert an advert in the souvenir to be published on the occasion. Maybe I am still new to these matters. I am however sure that not all award

winners in our country have to bargain to get one. There may also have been cases like mine, when organizers knocked the wrong doors.

Bolo; ‘ Hamara Bharat Mahan’.

10th May 1992.

(There could be nothing appropriate that make this episode from the Author's life the last one in this collection. For one who believes in humanity as the only way to conduct one's life and the one who shuns ritual in any form, Manav Dharma preached by Sant Dnyaneshwar could be the only faith that sustains spiritual aspects of life. That's why the memory of this episode is evergreen in author's mind even after 60 long years.)

A RECIPE FOR SOUL LIBERATION

It was August 1944. The venue was my fifth grade classroom in *Nutan Marathi Vidyalaya* in Pune. Our class teacher Mr. M.M.Bapat was teaching a lesson in Marathi. Suddenly, we heard a rhythmical chanting, slowly rising in crescendo, from the far end of the street in front of our school. It was *Dnyaeshwar Mauli's palkhi* passing through Pune on its way to Pandharpur. As the procession neared our school, we could clearly hear the words. “*Nivrutti, Dnyandeo, Sopan, Mukatabai, Eknath, Namdeo, Tukaram*”. Bapat Sir allowed us to go to the windows and watch the processionist — *Varkaris* – trotting and chanting to an enchanting rhythm produced by cymbals — *zanj*. In five minutes the procession passed the school but the chanting was still haunting us.

Bapat Sir was a great teacher. He was a strict disciplinarian and yet he had a softer side, the mark of a true, genuine teacher. In many ways he was kind and considerate. As he noticed how mesmerized we were by the procession and the chanting, he decided to digress a little from our normal lesson and instead narrated us the fascinating and stunning truth behind the chant. Although his explanation was beyond the grasp of a ten year old kid, his words for some reason got etched on my brain and found a home in my heart. Sixty years later, I can't recollect how Bapat Sir looked or what he taught but his explanation of the chant is as fresh in mind as that memorable day in August 1944.

He said, “Sons, this chant is not just beautiful and enchanting because of its rhythm and tempo but also because it's impregnated with an eternal truth. It guides us on the path of attaining Godhood.

It's a wonderful expression of how to conduct our lives and be guided by progressive landmarks on the path to salvation, to be one with God. Each name represents a quality, a state of mind we need to attain before we proceed to the next rung of the ladder. As you grow, not just in age but in knowledge too, each state will act like an anchor to firmly latch on to, and then guide you, elevate you to the next level like a light house.

Nivrutti, meaning detachment, is the first step. When we complete raising our family, we need to slowly get rid of our attachments; starting with material possessions and graduating to sentimental attachments of the family. The goal is to be detached from the worldly life.

Dnyandeo, meaning knowledge is the second step on this path. It signifies not just the acquisition of bookish knowledge but gaining of wisdom; seeking the truth about the purpose and meaning of our life on this earth as a living being. In other words, it is *sadhana*; an unending search.

Sopan in Marathi means a ladder. Equipped with detachment and wisdom, you can then elevate yourself to a new plateau of consciousness.

Muktabai, meaning liberation is the fourth step, attaining *Mukti*. It is a state marked with an understanding and awareness of one's position in the universe.

Eknath means one Lord. In that elevated state of *Mukti*, any sense of duality is simply dissolved. All you realize is that Unity is oneness of *Shakti*; seeing ultimate truth in its face.

Namdeo in Marathi could mean *nama purta deo* i.e. God for name's sake. That is the last stage or ultimate realization that God is a concept; a hypothesis to explain and help us understand that oneness, that unity.

Tukaram is the final stage, when there is nothing but oneness; when one merges with that one Reality. *Tukaram* in Marathi can be rewritten as a question. *Tu ka Ram?* Are you the Ram? It is a symbolic way to explain away any duality.

I have been learning all my life and that process would continue for me as it will for all of us but I can't yet fathom why I haven't forgotten this out of the curriculum lesson taught by Bapat sir. I am not a scholar of

Saint Literature and claim no great insight into their teachings but I have never come across this explanation from whatever I have read or heard from various learned scholars in the field.

Even more fascinating and amazing is the fact that the order in which the names of Sant Mahatmas are woven in that chant is also the chronological order in which they appeared! Nivrutti, Dyandeo, Sopandeo and Muktabai hailed from the same family. Nivrutti was the eldest followed by Dyaneshwar, Sopandeo and youngest sister Muktabai; each a saint in their own right. Then came Eknath followed by Namdeo and finally Sant Tukaram; all over a period of 350 years in Maharashtra. Why? I have no clue.